

# **The Nomological Network of Social Desirability and Faking: A Reappraisal**

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## **Abstract**

The issues of social desirability and faking are for many psychologists associated with control instruments to avoid response distortion. For a long time, research questions tended to examine the consequences of faking. There are only a few studies which explored the nature of social desirability or faking, and that is where the current dissertation makes a contribution. In most studies of social desirability or faking, the investigation of response distortion in two different situations is described. On the one hand, unintentional distortion is often explored in research. On the other hand, intentional distortion is examined in the practical field. The first study was an online survey in which the sample completed a large number of questionnaires regarding social desirability, overclaiming, overconfidence, and personality to investigate the common core of a shared nomological network. The results suggest there is no common core among response distortion forms. Overclaiming seems to have its own nomological network. Overconfidence is regarded more as a metacognitive ability rather than a response distortion form. In the second study, by dint of a modeling technique (Ziegler, Maaß, Griffith, & Gammon, 2015), a latent faking variable could be modeled. Subsequently, the relationship between the faking variable and social desirability, overclaiming, and the dark triad was examined. The data of an experimental group and a control group were collected with two measurement occasions. The experimental group was first asked in an online survey to fill out questionnaires. Later the participants came to the laboratory and were randomly assigned to a special instruction group. The results show that Machiavellianism and one factor of socially desirable responding have significant regression weights for both faking conditions. Furthermore, Study 2 implies different psychological processes of faking good and faking bad.

## **Zusammenfassung**

Die Themen soziale Erwünschtheit und Faking sind für Psychologen verbunden mit Kontrollinstrumenten, die eingesetzt werden müssen, um Antwortverzerrungen zu vermeiden. Lange Zeit wurde erforscht, ob sozial erwünschtes Verhalten beziehungsweise Faking Konsequenzen hat. Es gibt einzelne Studien, die die Eigenschaft der Konstrukte untersuchen und daran knüpft die vorliegende Arbeit an. Es existieren in den Studien zur sozialen Erwünschtheit und Faking zwei typische Situationen. In Forschungsstudien werden eher unbewusste Prozesse der Antwortverzerrungen untersucht. Studien aus der Praxis beschäftigen sich vor allem mit bewusster Verfälschung.

Die erste Studie wurde online durchgeführt, in der Probanden eine Vielzahl von Fragebögen zu den Themen soziale Erwünschtheit, Overclaiming, Overconfidence und Persönlichkeit ausfüllten, um den gemeinsamen Kern eines nomologischen Netzwerkes zu untersuchen. Die Ergebnisse zeigten, dass kein gemeinsamer Kern der Fragebögen gefunden werden konnte. Overclaiming scheint ein eigenes nomologisches Netzwerk zu bilden. Overconfidence kann eher als Fähigkeit der Metakognition als eine Antwortverzerrung bezeichnet. In der zweiten Studie wurde mit einem Model (Ziegler et al., 2015) eine latente Fakingvariable modelliert und anschließend der Zusammenhang zu Skalen der sozialen Erwünschtheit, Overclaiming und den Dark Triad untersucht. Dabei wurden Daten einer Experimentalstichprobe und einer Kontrollgruppe zu zwei Messzeitpunkten erhoben. Die Experimentalstichprobe füllte online zum ersten Messzeitpunkt mehrere Skalen aus. Zum zweiten Messzeitpunkt beantworteten die Probanden im Labor den Persönlichkeitsfragebogen erneut, unter einer zufällig zugeordneten Fakinginstruktion. Die Analyse der Daten ergab bedeutsame Zusammenhänge zwischen der latenten Fakingvariablen und Machiavellismus und einem Faktor zur sozialen Erwünschtheit. Außerdem wurde deutlich, dass der psychologische Prozess für die zwei Faking Situationen unterschiedlich ist.

# 1. INTRODUCTION

*- A lie is a vice only when it does harm. It is a very great virtue when it does good. -*

*(Voltaire)*

Maybe because of the “virtue” introduced by Voltaire, lying or response distortion are interesting and cross-epochal issues. No matter if lying is investigated scientifically or socially - we, humans, are interested often times in the same questions: Can we prevent lying? And if not: How could we detect response distortion? Who is the best liar?

Psychologists have investigated the topic of response distortion scientifically since the middle of the 20<sup>th</sup> century. Above all, the term SOCIAL DESIRABILITY represents a key form of response distortion. The aim of psychological assessment is the accurate description of behavioral and cognitive attributes. It seems to be too time-consuming to drop a test person in a special social situation and observe how he or she reacts or feels; instead we ask directly “Are you an enthusiastic person?” In that process we are dependent on self-reports where the accuracy is vulnerable. This occurs because of response distortion. This use of noncognitive attributes occurs in nearly every life. In assessment centers for a personnel selection, in clinical treatments or for educational decisions- a self-report measurement is indispensable. Personality measures in the form of self-reports have a lot of benefits: They are simple, applicable for big samples, and more accepted than cognitive tasks like intelligence measures. In the field of organizational psychology personality inventories demonstrated good prediction for personnel selection (Barrick & Mount, 1991). Nonetheless, self-reports are easy to fake.



By searching the term “social desirability” in Google scholar you receive more than 400.000 results. Apparently, the questions “Why is another study about social desirability necessary? What is new?” are suspended in mid-air when reading the topic of the current dissertation. While researchers in the area of social desirability mostly concentrate on what outcome or role socially desirable responding has, some questions have not been satisfactorily answered so far. Among them, for example: What is the common core of social desirability and its synonyms? Which role do situational aspects play in the way of response distortion?

The following passages of this dissertation contain background information regarding social desirability in general and faking in more detail. First, I describe the state of the art of research focusing on social desirability. In accordance with that research I examine the nomological network of social desirability and faking by means of two standard situations in two studies: In low-stakes settings (Study 1) and in high-stakes settings (Study 2). Lastly, I summarize the present results, and discuss implications for future directions.

## **2. SOCIAL DESIRABILITY**

### **2.1 What we Know About Social Desirability**

According to Paulhus socially desirable responding (SDR) is “defined as the tendency to give positive self-descriptions” (Paulhus, 2002, p. 49). That is why a responder could obtain more desirable scores than would be attained by responding honestly.

According to Jackson and Messick (1958) response distortion can be divided into two forms: response set and response style. Response sets represent inconsistent behavior across time and measurements (Ziegler, MacCann, & Roberts, 2012a). Response styles “[...] have a stable and valid component [...]” (Jackson & Messick, 1958, p. 244). Acquiescence - agree to items regardless of the content of items -, or overgeneralization are familiar response styles in psychology. Also social desirability could be categorized as a response style (Jackson & Messick, 1958).

In this section a short summary of the history of the construct social desirability is given and the two-tier model of Paulhus (2002) is presented.

#### **2.1.1 The History of Social Desirability**

There exist already some articles about the history of social desirability and the origin of deception (Griffith & McDaniel, 2006; Holden & Passey, 2009; Paulhus, 2002; Zickar & Gibby, 2006). Therefore, this part is only a summary of important points regarding social desirability without repeating already cited articles.

Already a lot of philosophers have been engaged in thinking and writing about self-deception. Sartre and Kierkegaard considered self-deception to be a moralistic issue: Either an individual is responsible for his or her behavior or deny that responsibility as a self-deceiver (Paulhus, 1986). The moralistic issue is an important aspect of social desirability and from this follows current taxonomies of the named construct.

Interestingly, some articles engaged in the question of the human reasons for

deception or lying. According to Griffith and McDaniel (2006) the origin of deception is evolution, from is like a biological point of view. If somebody could deceive the predator he or she has a better chance to survive. However Griffith and McDaniel (2006) emphasized the intentional character of deception, and they also draw parallels to the employment setting where the competitive forces of nature operate, figuratively. A more psychoanalytical point of view came from Paulhus with his statement: “In the beginning there was Freud” (Paulhus, 1986, p. 144). Paulhus argued that Freud’s concept of the unconscious lay the foundation for self-deception. Because of unconscious behavior people may lie to themselves. Motivation of aggressive behavior is one reason for lying to the self because of the conscious knowledge that aggression is not accepted in society.

There exists a very suitable description of the research development regarding social desirability since the middle of the 20<sup>th</sup> century: “Like a forest fire, disagreements regarding the topic have ranged from the incendiary blazes of the 1960s to controlled flames in the 1970s and 1980s. During the 1990s, some believed the fire had been extinguished, but the first decade of the 2000s has seen that the debate still smolders” (Holden & Passey, 2009, p. 441). Around the 1960s a lot of psychologists appreciated the meaning of socially desirable responding and most of them were agreed about how to control for social desirability. In this period a lot of socially desirable responding measurements were developed, which are still used today partially in research and in the practical field. I will get back to measurements later when presenting the current empirical studies. In addition to the developing processes to control for social desirability, structural knowledge about the construct has also developed. A lot of researchers agreed that social desirability is a multidimensional construct (Messick, 1960; N. Wiggins, 1966). J. S. Wiggins (1964) labeled two independent clusters of typical socially desirable responding scales with Alpha and Gamma. Damarin and Messick (1965) were the first researchers who investigated the psychological constructs underlying Alpha and Gamma. Their first factor named “Autistic Bias in Self-Regard” could be associated with self-

esteem and their second factor “Propagandistic Bias” is related to social approval (Paulhus, 2002). That was the first categorization of the construct social desirability and the theoretical and empirical background for Paulhus’ model which - in terms of the state of the art – is the current model of social desirability.

### 2.1.2 Paulhus’ Model of Social Desirability

When Zickar and Gibby (2006) investigated the relationship between faking and social desirability, they related conscious response distortion to faking and unconscious response distortion to social desirability. The two motives are still relevant for response distortion but in the model of social desirability of Paulhus (2002) they are integrated for the whole construct of social desirability. According to Paulhus’ conception there are conscious and unconscious forms of socially desirable responding. Figure 1 displays Paulhus’ (2002) socially desirable responding model.

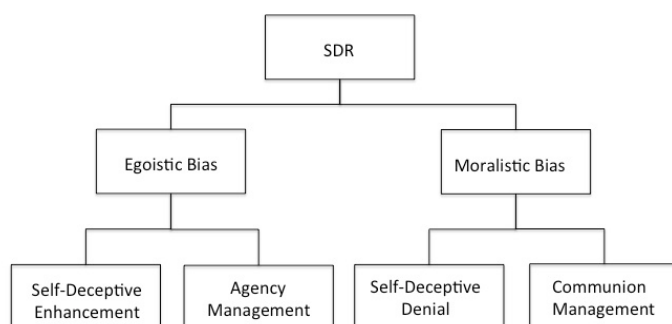


Figure 1. Paulhus’ (2002) social desirability model.

It is a hierarchical model and social desirability is positioned at the top and the outcomes of the model are four types of socially desirable responding. The two-tiered model differentiates between the theme of the bias (egoistic vs. moralistic) and the type of audience (self vs. others). Egoistic bias is a “tendency to exaggerate one’s social and intellectual status” (Paulhus, 2002, p. 63) and moralistic bias is defined as a “tendency to deny socially-deviant impulses and claim sanctimonious, ‘saint-like’ attributes” (p. 64). Therefore, Paulhus followed the consensus in research regarding two empirical factors of social desirability.

Paulhus' egoistic bias is associated with Wiggins (1964) Alpha factor and the moralistic bias is connected with Gamma. Paulhus investigated correlations between Alpha and the personality factors extraversion and openness. Gamma was correlated with conscientiousness and agreeableness. A process level of conscious and unconscious distortion is included in Alpha as well as in the Gamma factor. Based on the four different types of socially desirable responding, Paulhus (2002) demands four different types of questionnaires. But this differentiation for measures of socially desirable responding is not the common practice in research. In the part on research questions I will pick up this point again.

Whereas Jackson and Messick (1958) characterized socially desirable responding as a response style, Paulhus differentiated the assignment of the construct social desirability in terms of the response forms. Paulhus (2002) showed empirically that impression management “[...] has so many sources and is so sensitive to situational demands” (p. 65). He concluded his study with the thesis that the two forms agency and communion management are rather response sets. Contrarily, Paulhus classified the self-deceptive response biases as a response style because of its stable component.

The presented model of social desirability is the theoretical foundation of this dissertation and the definition involved the model of socially desirable responding was applied.

## **2.2 Faking**

A summary of faking history can be found in Zickar and Gibby (2006). They indicate that in the early 1930s researchers thought about the intentional distortion of personality inventories and they emphasized that techniques were required. Also Ellingson, Sackett, and Connelly (2007) described faking as an intentional distortion. The latest review of faking comes from Ziegler, MacCann, and Roberts (2012b). “Faking represents a response set aimed at providing a portrayal of the self that helps a person to achieve personal goals. Faking

occurs when this response set is activated by situational demands and person characteristics to produce systematic differences in test scores that are not due to the attribute of interest” (Ziegler et al., 2012b, p. 8).

A plethora of studies investigated contradictory outcomes of faking - “The breadth of findings varies from studies concluding that faking has a substantial effect on test scores’ construct validity (Ziegler & Buehner, 2009) to studies indicating that such response distortions affect the test scores’ criterion-related validity (Holden, 2007)” (Bensch, Maaß, Greiff, Horstmann, & Ziegler, accepted, p. 4). These different results are maybe a consequence of different definitions and operationalizations of faking. That is why the topic of the current dissertation is the investigation of the nomological network of faking using as its basic concept the faking definition by Ziegler et al. (2012).

According to Paulhus’ model of social desirability faking is similar to agency and communion management because of its conscious and deliberate character. Despite this fact, faking is often operationalized with classical socially desirable responding questionnaires-included the unintentional facets of social desirability. Again, a lot of similarities of one response set - faking - are used in research and it is not clarified satisfactorily whether the simultaneous application is justified.

The requested techniques (Zickar & Gibby, 2006) for modeling faking came in the noughties. A lot of theoretical models of faking were suggested (more information about the models can be found in Study 2; Ellingson & McFarland, 2011; Goffin & Boyd, 2009; McFarland & Ryan, 2000; Mueller-Hanson, Heggstad, & Thornton, 2006; Robie, Brown, & Beaty, 2007; Snell, Sydell, & Lueke, 1999; Ziegler, 2011). The current dissertation uses the statistical model of Ziegler et al. (2015) who “proposed a modeling approach that is based on latent difference score models (LDSM; McArdle, 2001) and factor mixture models (FMMs). LDSMs allow researchers to capture quantitative differences between faked and honest responses” (Bensch et al., accepted, p. 9). Another advantage of this model is that faking

behavior can be predicted by other psychological constructs and this fact is useful in exploring the nomological network of faking which is the focus of the current dissertation.

One basic concept of the faking definition by Ziegler et al. (2012b) is the situational demands which affect faking behavior. In the research of faking two classical situations were focused on: faking bad and faking good. Faking bad or malingering could typically be observed in clinical settings, to influence a diagnosis decision. Faking good is often times a problem in personality selection processes, where applicants want to present themselves in the best way (Ziegler et al., 2012a).

## **2.3 Other Response Distortion Forms**

Since Paulhus' book chapter about social desirability (2002), new questionnaires were developed and articles used terms of response distortion as synonyms. Two response distortion forms named overclaiming and overconfidence were explored because of their theoretical as well as methodological parallels.

### **2.3.1 Overclaiming**

Because of many doubts regarding the socially desirable responding measurements Paulhus and Harms (2004) developed a more objective measure named the overclaiming questionnaire. "Over-claiming is the tendency to claim knowledge about nonexistent items" (Paulhus, Harms, Bruce, & Lysy, 2003, p. 891). A typical overclaiming test is a comprehensive self-report measure with items that reflect academic and everyday knowledge. Particularity, some items are non-existent items, they are preconceived. Respondents have to indicate in a questionnaire how familiar they are with the items. By dint of the signal detection theory (Paulhus et al., 2003), researchers could measure knowledge exaggeration and knowledge accuracy simultaneously. According to Paulhus et al. (2003) overclaiming could be classified as a synonym of self-enhancement, one type of social desirability (Paulhus, 2002).

### **2.3.2 Overconfidence**

Overconfidence means to overestimate one's own ability. Primarily, the construct self-confidence (Stankov & Crawford, 1997) describes a continuum from underconfidence to overconfidence. In combination with socially desirable responding only overconfidence is of note. In combination with a cognitive ability test, participants have to indicate how confident they are (by using a percentage scale) about the accuracy of their answer. "The percentage of correctly answered items in the test can then be subtracted from the average of confidence ratings across all items in the test. [...] Positive scores indicate that people are overconfident about their performance" (Bensch, Paulhus, Stankov, & Ziegler, 2017, p. 3).



### 3. RESEARCH QUESTIONS

After introducing the key psychological constructs and response distortion forms, I would like to present the research questions of the current dissertation.

According to Paulhus' model (2002) of socially desirable responding, which distinguished between intentional and unintentional distortion, the following two studies will investigate social desirability systematically subdivided into unintentional and intentional distortion research. Since Paulhus' book chapter (2002) no more thorough and systematic review of social desirability has been provided, which is why a reappraisal is obligatory.

There exist two typical situations for using socially desirable responding tests: (1) in research, where the outcomes of unintentional distortion are oftentimes investigated and (2) in practice, where the major topic is intentional distortion or faking. Ziegler et al. (2012b) described the situational demand for response distortion with other concepts: "The strength or possibility of reward is often described as the stakes of the testing situation. A low-stakes test has no or few important consequences whereas a high-stakes test may result in consequences that are highly valued by the test takers" (p. 7).

#### 3.1 Research: Low-Stakes Setting

Within the scope of the first study - the first situation - the combination of a typical research design with unintentional response distortion and nearly no consequences for the participants was investigated in the current dissertation. Here, the question:

(1) *What is the nomological network of social desirability?*,

will be explored.

"Cronbach and Meehl (1955) put forward necessary steps for laying out a nomological network. Among other aspects, they emphasized that a nomological network needs to make clear how theoretical constructs relate to each other" (Bensch et al., 2017, p. 1). In addition to Paulhus (2002) we investigated the nomological network of social desirability including

overclaiming and overconfidence, and personality. Various studies indicate strong relations between measurements of personality and socially desirable responding (Ones, Viswesvaran, & Reiss, 1996; Pauls & Stemmler, 2003; Perinelli & Gremigni, 2016) and that is why it is important to also include personality factors in the nomological network of social desirability.

### **3.2 Practice: High-Stakes Setting**

The second study deals with the combination of intentional distortion and (severe) consequences for the test takers. This description of a situation could be reflected in the definition of Ziegler et al. (2012b), where the response set faking was described. That is why the question:

*(2) What is the nomological network of faking?,*

is investigated in study two.

There exist some studies that explore the process of faking (Robie et al., 2007; Ziegler, 2011; Ziegler et al., 2015) but research on the differentiation between the two classical situations faking bad and faking good is scarce. Furthermore, the classification of faking in the model of Paulhus (2002) is inadequately clarified.

Focused on these two mentioned research questions, two empirical studies are presented in the following two passages. Afterwards, in the section of the general discussion, answers to the two questions are given in accordance with the results of the two studies.

## **4. TEASING APART OVERCLAIMING, OVERCONFIDENCE, AND SOCIALLY DESIRABLE RESPONDING (STUDY 1)**

Between the positivity biases of socially desirable responding, overclaiming and overconfidence there are theoretical as well as methodological parallels. Actually, some studies use the terms as synonyms (e.g., Anderson, Brion, Moore, & Kennedy, 2012). Positive distortion is the shared feature between these three response biases, which implies that scores from all of these measures could be related within a nomological network (Cronbach & Meehl, 1955). Previous research focused only on dyadic relationships but research about a common core is scarce. That is why Study 1 of this dissertation explores whether standard positivity bias measurements share a common nomological network in a low-stakes setting. Integrated in the same nomological network of positivity bias are closely related constructs such as intelligence and personality.

### **4.1 Socially Desirable Responding for a Low-Stakes Setting**

In an online survey 789 participants had to fill out an inventory consisting of measurements of social desirability, overclaiming, crystallized intelligence, Big Five and grandiose narcissism. With regard to the definitions of social desirability, overclaiming and overconfidence there could be an overlap between all three positivity biases because there are some similarities in terms of a distorted self-portrayal: As aforementioned socially desirable responding is related to a more positive self-description; overclaiming is associated with wanting to appear more knowledgeable; and overconfidence is characterized by an overestimation of one's performance. Furthermore, there exists an operational overlap between overclaiming and overconfidence by using a performance test, and this captures ability exaggeration. Additionally, overclaiming is integrated in the Paulhus' model of social desirability. That is why we expected a common core between all three positivity bias

measurements and by adding the closely related constructs to the nomological network we expected to clarify specific variance information.

To summarize, Study 1 investigated the nomological network of socially desirable responding in a low stakes setting.

## **5. THE NATURE OF FAKING—A HOMOGENEOUS AND PREDICTABLE CONSTRUCT? (STUDY 2)**

As previously mentioned, faking is similar to Paulhus' agency and communion management forms in the model of social desirability. The construct of faking, mainly for high stakes settings, has been explored in many research studies (for a recent review, see Ziegler et al., 2012b). In comparing the results of these studies, again a plethora of different operationalizations of faking was conspicuous, which impedes the investigation of faking behavior. Again, a reappraisal of the nomological network of faking is necessary to understand the common core and closely related constructs of faking.

### **5.1 Faking in a High-Stakes Setting**

In total, 400 persons participated in Study 2 with two measurement occasions - divided into an experimental group (N = 233) and a control group (N = 167). The data of the control group were collected by Ziegler and Buehner (2009). The control group filled out a personality measure twice with a two hours time interval between both measurement points. The experimental group was first asked to fill out questionnaires of social desirability, overclaiming, and personality with regular instructions in an online survey. Later (after an average of one week), they were randomly assigned to a special instruction group (faking bad or faking good) and came to a laboratory. By dint of a modeling technique introduced by Ziegler et al. (2015) faking could be measured as a latent variable and interindividual differences in faking behavior could be investigated. Study 2 had three research objectives: (1) Replicate the modeling technique by Ziegler et al. (2005) and extend it to the faking bad instruction and to all the Big Five, because the model has so far been applied only for conscientiousness. (2) Some studies examined the process of faking (Robie et al., 2007; Ziegler, 2011; Ziegler et al., 2015) but we want to go deeper and investigate the process of

faking good and faking bad. (3) Little is known about the personality of individuals who faked scores. That is why the predictive power of several constructs, for example socially desirable responding, is also tested.

The next section describes in more detail the procedure of Study 2, where faking was investigated in a high stakes situation.

## 6. GENERAL DISCUSSION

The title of the current dissertation indicates its research objective: A Reappraisal regarding the nomological network of social desirability and faking is necessary because of new developments in questionnaires and new modeling techniques which enabled a more precisely differentiation between different constructs or questionnaires.

### 6.1 Summary of the Findings

In the following, I summarize the results of Studies 1 and 2 with a special focus on the common core of, respectively, social desirability and faking.

#### 6.1.1 What is the nomological network of social desirability?

Study 1 indicated, that there is no common core between the three positivity bias measurements socially desirable responding, overclaiming, and overconfidence. Each measurement captures specific variance more than shared variance. In terms of construct validity there is (1) no evidence for convergent validity between the three positivity biases because the correlations between socially desirable questionnaires and, respectively, overclaiming and overconfidence are low. (2) Regarding the discriminant validity we found good evidence as a result of only moderate correlations between the scores of personality factors and scores of overconfidence and overclaiming. But (3) the high correlations between the scores of socially desirable responding and scores of personality questionnaires are problematic. There is no discriminant validity evidence. This is in line with previous findings that socially desirable responding and personality are difficult to differentiate. This debate about substance versus style has been discussed (Jackson & Messick, 1958; McCrae & Costa, 1983) several times.

Additionally, the exploratory analyses in Study 1 support findings about the problem with the large overlap between socially desirable responding and personality. Only the factor

named egoistic bias was free of a substantial overlap with personality. We could also conclude that overclaiming and overconfidence seem to have their own nomological network because they could not be explained by any of the factors. The measurements of overclaiming and overconfidence determine unique variance. The exploratory analyses from Study 1 revealed the same factor for crystallized intelligence and overconfidence, which is why we propose that overconfidence is a metacognitive ability rather than a positivity bias. Because of these findings, overconfidence should not be integrated in further studies when exploring social desirability.

All in all, the three response distortion forms do not share a common core and that is why an interchangeable use of socially desirable responding scales, overclaiming questionnaires or overconfidence measures is not proposed. The big overlaps between social desirability and personality are problematic and we still do not really know what socially desirable responding is - a response style or rather a personality facet? I will further discuss this point.

### **6.1.2 What is the nomological network of faking?**

The results from Study 2 showed that the findings by Ziegler et al. (2015) could be replicated - variance in faking behavior could be modeled - and also expanded to include all Big Five (neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness), and that the faking bad instruction was successful. The study contributes to the faking literature in finding that faking behavior is not homogeneous across the five personality domains and the relevance of an item regarding the faking aim is important and secondary, it depends on the situational demands (faking good and faking bad). For this reason, as mentioned above, different results in other faking studies can be explained. The findings of Study 2 show that participants were able to understand the situation-specific demands and need knowledge about the relevance of each item for the instruction goal. This idea is further discussed in the next section. In a final step, faking behavior was predicted with



other scores of measurements. Only the Alpha factor - a common variance underlying the socially desirable responding scales of Edward and the self-deceptive enhancement scale - had a significant regression weight for both faking conditions. Faking good was influenced by Machiavellian tendencies.

The findings point to the idea that faking is not a unidimensional process and it depends on the situational context and even the questions asked.

## 6.2 Theoretical and Practical Implications

The current work and its title imply a context linking social desirability and faking. Also the theoretical part of this dissertation, with the description of Paulhus' model (2002) of social desirability, hypothesized that faking could be embedded into the model. The current results, however, imply a differentiation between social desirability and faking.

**Replication of Paulhus' social desirability model.** The first study did not support the social desirability model of Paulhus (2002). The difference between Paulhus' and our study was the methodology. Paulhus correlates the scores of socially desirable responding with the scores of personality. We integrated the scores of personality into our nomological network of social desirability by analyzing an exploratory analysis with scores of socially desirable responding and personality additional to the correlations. Our results revealed four factors marked by socially desirable scales but three of them were also described by scores of personality. The substance versus style debate about the construct of social desirability is not yet examined adequately. In the study of de Vries, Zettler, and Hilbig (2014) the impression management scale was most predicted by the honesty-humility factor of the HEXACO (Ashton et al., 2004) model of personality. The facets of the domain honesty-humility are sincerity, fairness, greed avoidance, and modesty (Ashton, Lee, & De Vries, 2014), which sound similar to the description of social desirability. Another interesting article by R. Hogan, Chamorro - Premuzic, and Kaiser (2013) established a relationship between socially desirable responding

and employability - the ability to get a job. Further research is necessary to explore what social desirability really is - a response style or rather a personality trait. Furthermore, Pauls and Crost (2004) suggested not classifying socially desirable responding into conscious and unconscious forms, but rather examining the situational context when self-presentation was distorted.

**Socially desirable responding measures.** de Vries et al. (2014) provide a good summary to argue against the use of socially desirable responding scales: “Especially the use of impression management scales as a diagnostic tool among practitioners or - among researchers - as a tool to check for biases in new scales or to correct for biases in the relations with criteria, are practices that need to be corrected sooner rather than later” (p. 293). Based on our results we can only recommend the impression management scale and the self-deceptive enhancement scale for low-stakes settings. In our high-stakes setting, the variance of the Alpha factor, marked by the Edwards scale and the self-deceptive enhancement scale, was a good predictor for faking. With regard to the other socially desirable responding scales the relationship to personality is too closed. Here, again, further studies are necessary to provide supporting evidence for the current results.

Without exception, Study 1 suggested no interchangeable use of the three positivity bias scales overclaiming, overconfidence and socially desirable responding because there was no evidence for a shared variance. With regard to overconfidence, as already mentioned, we expect that overconfidence is a metacognitive ability rather than a response distortion. For overclaiming, the finding of Paulhus (2002) that overclaiming is similar to self-enhancement could not be verified. Some existing studies examine the role of overclaiming (Bing, Klumper, Davison, Taylor, & Novicevic, 2011; Feeney & Goffin, 2015; Kemper & Menold, 2014) but as yet the breadth of findings varies (see study 1) about the interpretation of overclaiming as a positive bias, which is why more research is required.

**Different faking processes.** Certainly, we can advise the use of the model by Ziegler et al. (2015) to explore the nature of faking in different situations. It was especially interesting to see that the process of faking is not homogeneous, and these findings entail advice not to generalize results of studies with only one kind of faking condition (faking bad or faking good). Different social demands might be responsible for different psychological processes.

**Variance in faking behavior.** Furthermore, there is no evidence to support use of the so-called faking detection scales of socially desirable responding or overclaiming. Only the Alpha factor could explain variance in faking behavior in Study 2, but we now know from the first study that there is a big overlap between socially desirable responding and personality. This result is consistent with the findings of Pauls and Crost (2004) who claimed: “[...] in faking conditions social desirability scales do not seem to provide additional diagnostic information beyond that derived from personality scales.” (p. 1149).

According to the definition by Ziegler et al. (2012b) faking is activated by situational demands, and this fact was controlled in Study 2. For this reason, conclusions with regard to personal characteristics – a further point of the faking definition - are possible. Based on our results, the outlook for Machiavellianism and narcissism is promising. Furthermore, Ziegler (2011) described in his cognitive process model of applicant faking behavior that specific knowledge and implicit theories about for example the job is important for faking. Also Griffith and McDaniel (2006) wrote that an association between the theory of mind (Premack & Woodruff, 1978) and faking exists. “This theory suggests that to effectively deceive an individual, the deceiver must understand what the target knows and how that information can be altered in a way to achieve a goal and evade detection” (Griffith & McDaniel, 2006, p. 7).

### 6.3 Outlook and Future Directions for Research

In the last section of this dissertation I briefly describe in what ways this dissertation was limited and suggest ideas for future directions of research of social desirability and faking.

### 6.3.1 Antecedents of social desirability and faking

Within the current work, one limitation in Study 1 was the use of aggregated scores for overconfidence, overclaiming, and crystallized intelligence. Maybe a subdivision between different knowledge areas would allow a detailed view of the constructs of faking and social desirability. As mentioned at the beginning of this dissertation, there is a considerable amount of research about the consequences of socially desirable responding and faking. When investigating the nomological network of a construct, the antecedents are also important. Van Iddekinge, McFarland, and Raymark (2007) differentiate between dispositional (personality traits) and situational antecedents. In this part I want to focus on the dispositional antecedents and in the next part I will discuss situational antecedents. McFarland and Ryan (2000) investigated which personality characteristics are related to faking. They found that “individuals who were low in integrity, low in conscientiousness, and high in neuroticism faked to a greater extent” (McFarland & Ryan, 2000, p. 816). Also in Study 1 we found strong correlations between neuroticism and scales of socially desirable responding. Maybe neuroticism is bridging the gap between personality and social desirability but also research on other personality factors, or better on the facets of personality, seems promising. One question could be: How is the relationship between faking behavior and integrity? Additionally, there is more work needed to understand how motivation and emotions influence faking or socially desirable responding. Ekman (2009) noted that fear and guilt are relevant emotions with regard to faking. For example, fear of getting caught is, according to Ekman, one reason not to fake.

According to the model of Paulhus, faking could be categorized by agentic traits, but conscious response distortions could also take place in a dating situation. Benz, Anderson, and Miller (2005) investigated whether men were deceived with regard to their commitment - a characteristically trait of Gamma.

Furthermore, cognitive ability is essential to identify the desirable items in a personality inventory. Also several further research questions regarding the cognitive load are imaginable. For example: What kind of role does the theory of mind play with regard to response distortion?

### **6.3.2 It depends on the situation**

Within the current work, one limitation was that we could not vary real-life influences for example job desirability. We had one situation in Study 1 and another in Study 2. But a wider variety of settings is required for investigation in the context of social desirability and faking. For example, real applicant settings and more studies from the clinical context are important to get a better understanding of response distortion. R. Tett et al. (2006) described differences in answering personality self-ratings between applicants and incumbents. That is why the investigation of the job situation, the job market, and/or the desirability of a job could be propositions for future research. Also Griffith and McDaniel (2006) emphasized that situational demands are responsible for deceptive behavior. To summarize, to understand faking in greater detail, more work is needed.

### **6.3.4 Collect more data**

Future studies should focus more on collecting large data sets. One limitation of the current work is the use of only quantitative analyses, without a qualitative approach. Through the use of interviews one can get more information about differences in faking behavior. Also with regard to emotions, physiological measurements could provide more valid results than self-reported measures.

## **6.4 Conclusion**

This dissertation suggests not using overclaiming, overconfidence and socially desirable responding as synonyms. They do not share a common core in terms of a nomological network. Additionally, with regard to faking, we have to distinguish between

different faking situations and can not generalize the results for the whole response set. The framework and findings may be useful for future studies, and especially for the practical field of psychology.

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## 8. ORIGINAL ARTICLES

### Article 1:

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## 8.1 Teasing Apart Overclaiming, Overconfidence, and Socially Desirable Responding



Article

### Teasing Apart Overclaiming, Overconfidence, and Socially Desirable Responding

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#### Abstract

Contamination with positivity bias is a potential problem in virtually all areas of psychological assessment. To determine the impact of positivity bias, one common approach is to embed special indicators within one's assessment battery. Such tools range from social desirability scales to overconfidence measures to the so-called overclaiming technique. Despite the large literature on these different approaches and underlying theoretical notions, little is known about the overall nomological network—in particular, the degree to which these constructs overlap. To this end, a broad spectrum of positivity bias detection tools was administered in low-stakes settings ( $N = 798$ ) along with measures of the Big Five, grandiose narcissism, and cognitive ability. Exploratory factor analyses revealed six first-order and two second-order factors. Overclaiming was not loaded by any of the six first-order factors and overconfidence was not explained by either of the two second-order factors. All other measures were confounded with personality and/or cognitive ability. Based on our findings, overclaiming is the most distinct potential indicator of positivity bias and independent of known personality measures.

#### Keywords

overclaiming, socially desirable responding, overconfidence, nomological network, positivity bias, faking

Response bias has been defined as a “systematic tendency to answer questionnaire items on some basis that interferes with accurate self-reports” (Paulhus, 2002, p. 49). Self-reports are often used in psychological research and that is why it is important to investigate response biases. One response bias is socially desirable responding (SDR); that is, the tendency to give overly positive self-descriptions (Holden & Passey, 2010). Paulhus (2002) also distinguished between intentional and unintentional distortion as well as an egoistic (or agentic) and a moralistic (communal) theme. Whereas much psychological research is concerned about unintentional distortions, real-life assessments can be hampered by intentional distortions or faking (Ziegler, MacCann, & Roberts, 2011). In order to capture variance due to such response sets, lie scales and other methods such as the overclaiming technique have been developed (Bing, Kluemper, Kristl Davison, Taylor, & Novicevic, 2011). Within research on cognitive biases, a method is used which captures overconfidence (e.g., Koriati, Lichtenstein, & Fischhoff, 1980; Moore & Healy, 2008). Similar to SDR, overconfidence reflects a positive deviation between estimated and actual performance (Stankov & Crawford, 1997). Thus, there is a theoretical parallel between the two construct areas. Finally, the overclaiming technique (Paulhus, 2011) was initially introduced as an alternative methodology for capturing SDR. Interestingly, the actual

operationalization of overclaiming is very similar to the operationalization of overconfidence. In fact, some studies have utilized overclaiming to operationalize overconfidence (e.g., Anderson, Brion, Moore, & Kennedy, 2012). Thus, there are theoretical as well as methodological parallels between measures of SDR, overconfidence, and overclaiming. In particular, they all purport to tap a positive distortion in self-reports. For simplicity, we will use the term *positivity bias* as a generic term for all of these measures.

This shared feature (positive distortion), implies that scores from all of these measures share a common core or are at least closely related within a nomological network (Cronbach & Meehl, 1955). Cronbach and Meehl (1955) put forward necessary steps for laying out a nomological network. Among other aspects, they emphasized that a nomological network

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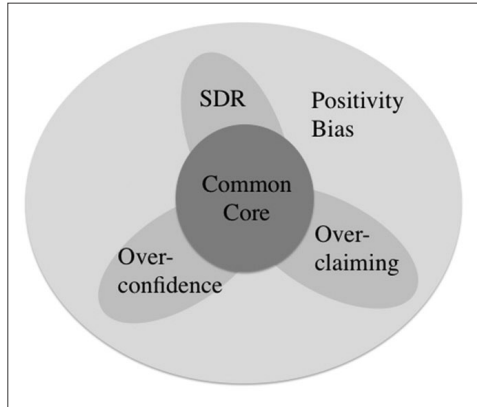
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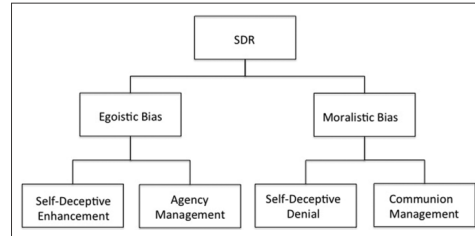


**Figure 1.** The nomological network of positivity bias including SDR, overclaiming, and overconfidence depicted as a Venn diagram (Ziegler, Maaß, Griffith, & Gammon, 2015).  
Note. SDR = socially desirable responding.

needs to make clear how theoretical constructs relate to each other. Moreover, they stated “We can say that ‘operations’ which are qualitatively very different ‘overlap’ or ‘measure the same thing’ if their positions in the nomological net tie them to the same construct variable” (p. 290-291). Thus, the current research tries to determine whether SDR, overclaiming, and overconfidence share a common core that ties together the seemingly different operations. In Figure 1, the nomological network of positivity bias with three measurements named SDR, overclaiming and overconfidence is illustrated (Ziegler & Bäckström, 2016). Unfortunately, actual research testing this hypothesis of a common core is scarce. To close this gap, the present study was conducted to explore whether standard positivity bias measures share a common nomological network in low-stakes settings. Of course, our reliance on data captured in a low-stake setting cannot automatically be generalized to high-stakes settings. This limitation also means that we are more likely to pick up conscious rather than conscious distortion. Nonetheless, most psychological research utilizes low-stakes data, making this study an important first step in charting the map of positivity bias measures.

### Socially Desirable Responding

A summary of the history of the construct and its development in research are beyond the scope of the present article (for a recent summary, see Paulhus, 2002). Response distortion via SDR allows the responder to achieve more desirable scores than would be obtained by responding honestly. This means that answers to personality questionnaires



**Figure 2.** Paulhus's (2002) socially desirable responding (SDR) model.

potentially contain extraneous variance due to SDR. With regard to the nomological network of SDR as expressed by its factor structure, most researchers agree on a two-factor solution (Wiggins, 1964). A more complex model from Paulhus (2002) is shown in Figure 2. SDR is positioned at the top of the hierarchy. Below, the two-tier model differentiates between the theme of the bias (egoistic vs. moralistic) and type of audience (self or others). Egoistic bias is defined as a “tendency to exaggerate one’s social and intellectual status” (Paulhus, 2002, p. 63), and moralistic bias as a “tendency to deny socially-deviant impulses and claim sanctimonious, ‘saint-like’ attributes” (p. 64). The outcomes of this combination are four types of SDR. Paulhus (2002) replicated the two-factor structure reported by Wiggins (1964), who had named the factors Alpha and Gamma. Alpha is associated with egoistic bias, and Paulhus showed that it was correlated with openness, extraversion, and intelligence. Gamma involves a moralistic bias and was correlated with conscientiousness and agreeableness.

Different approaches have been suggested for measuring the tendency to answer in a socially desirable way and thereby to capture the assumed bias. However, there is great diversity in the operationalizations of these approaches. On the one hand, there are stand-alone tests consisting of items describing socially desirable behaviors (Crowne & Marlowe, 1960; Edwards, 1957). On the other hand, SDR scales are also embedded within commercial personality inventories such as the Minnesota Multiphasic Personality Inventory’s Lie scale (Hathaway & McKinley, 1951). The form of such approaches is usually a self-report questionnaire.

Despite the outlined theoretical foundations, the actual items used to measure SDR are often criticized. The major concern is that it is difficult to differentiate between variance due to substantial personality differences and SDR within typical SDR measures. For example, there are people who truly possess socially desirable characteristics. Furthermore, various studies (Converse, Peterson, & Griffith, 2009; Ones, Viswesvaran, & Reiss, 1996; Pauls & Stemmler, 2003) have revealed strong relations between



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personality measures and SDR measures. Disentangling the different sources of variance within the measures is difficult and requires sophisticated statistical methods and elaborate research designs (Ziegler & Bühner, 2009). Most researchers agree that it seems impossible to construct an SDR scale that does not capture substantial amounts of variance that are due to real individual differences in personality (Holden & Passey, 2010). Thus, in order to explore the joint nomological network of SDR measures, researchers need to include personality measures in their research in order to disentangle SDR and substantial personality variance.

### Overclaiming

As a response to the problems associated with traditional SDR scales, a different approach to capture SDR was developed, namely, the overclaiming technique. “Over-claiming is the tendency to claim knowledge about nonexistent items” (Paulhus, Harms, Bruce, & Lysy, 2003, p. 891). In a typical overclaiming test, respondents rate their familiarity with items that reflect content from science, engineering, music, and so on. A unique aspect of this method is the use of non-existent items (at most 20%) called foils. The tendency to claim such items provides a concrete index of overclaiming. Application of this technique permits researchers to measure both knowledge exaggeration ( $\text{Bias} = [\text{Hits} + \text{False alarms}]/2$ ) and knowledge accuracy ( $\text{Accuracy} = \text{Hits} - \text{False alarms}$ ; Paulhus & Dubois, 2014). This is a significant advantage over other instruments that test for response biases only. On the one hand, the overclaiming questionnaire is a self-report method. On the other hand, it is an objective measure whose accuracy index can act as a proxy for intelligence, especially crystallized intelligence (Ziegler, Kemper, & Rammstedt, 2013). If people show a tendency to claim knowledge of items that are predominantly foils, their bias score will be high, but if they mostly claim familiarity with real items, they will receive a high-accuracy score. With regard to the SDR model in Figure 2, overclaiming was empirically related to self-deceptive enhancement (SDE; Paulhus et al., 2003).

The overclaiming has been used to operationalize impression management (IM) and thus the deception of others (Bing et al., 2011). Yet this claim has not remained without critique (Feeney & Goffin, 2015; Kam, Risavy, & Perunovic, 2015; Ludeke & Makransky, 2015). Finally, other empirical evidence suggests a stronger relationship of overclaiming with an egoistic bias and not a moralistic bias (Tonković, Galić, & Jerneić, 2011). Thus, despite mixed empirical evidence, there are strong theoretical reasons to locate overclaiming within the same nomological network as other SDR measures.

### Overconfidence

For ability tests, there is a method that measures the overestimation of one's own capabilities, namely, overconfidence.

By this definition, it sounds like another potential candidate for the nomological network in focus here. Stankov and Crawford (1997) postulated the existence of a separate self-confidence trait that, combined with accuracy, defines a continuum from overconfidence to underconfidence. Of interest to us, here is the method used to assess overconfidence because it resembles other methods used to capture positivity bias. After completing an item from an ability test, participants are asked to indicate, using a percentage scale, how confident they are about the correctness of their answer. Again, two pieces of information are captured with each item: the correctness of the answer and the confidence rating. The percentage of correctly answered items in the test can then be subtracted from the average of confidence ratings across all items in the test. The result can be used as an estimate of a person's calibration. Positive scores indicate that people are overconfident about their performance. Besides the similarity to overclaiming in terms of operationalization, there are studies that have used overclaiming to capture overconfidence (Anderson et al., 2012). Using six studies, Anderson and colleagues wanted to investigate whether overconfident behavior serves to enhance one's status in groups. In their second study, overconfidence was operationalized with an overclaiming questionnaire. Apparently, those authors view overclaiming tests as an alternative operationalization of overconfidence. Again, this opens up the possibility that overconfidence is part of the nomological network of positivity bias. It has to be stressed here that the authors of the method (Koriat et al., 1980; Moore & Healy, 2008) never formulated such a claim.

### Relations Between Socially Desirable Responding, Overclaiming, and Overconfidence

When considering the definitions of the three constructs described above, that is SDR, overclaiming, and overconfidence, a number of similarities become apparent. SDR was defined as an overly positive self-portrayal. Similarly, overclaiming also results in a distorted (i.e., more knowledgeable) self-portrayal. Also similar is the overestimation of one's performance indexed by overconfidence measures. Both overclaiming and overconfidence are similar to SDR but restricted to a specific ability domain. Overclaiming is also directly linked to self-enhancement, which is part of the SDR model suggested by Paulhus (2002). Overclaiming and overconfidence also share a further feature. Both are measured by using a performance test, and both measures capture ability exaggeration. In short, based on theoretical grounds as well as methodological similarities, it is reasonable to assume that overclaiming, and overconfidence are part of the same nomological network. In particular, if all measures capture positivity bias as defined earlier, they should have a common core within a shared nomological network.

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**Table 1.** Descriptive Statistic of all Measures.

Scale	Min	Max	M	SD	$\Omega_w$
Extraversion (P)	5	20 (20)	13.79	3.50	0.86
Agreeableness (P)	5	20 (20)	12.17	3.03	0.75
Conscientiousness (P)	6	20 (20)	14.20	2.85	0.72
Neuroticism (P)	4	20 (20)	12.63	3.40	0.76
Openness (P)	8	25 (25)	20.63	3.28	0.88
Grandiose narcissism (P)	52	70 (80)	61.06	3.02	0.85
Edwards SDR scale (SDR)	25	97 (120)	59.55	12.88	0.88
First-factor Marlowe–Crowne scale (SDR; attribution of desirable behavior)	20	50 (50)	36.29	4.42	0.65
Second-factor Marlowe–Crowne scale (SDR; denial of undesirable behavior)	23	54 (65)	39.02	5.24	0.71
Self-deceptive enhancement (SDR)	51	120 (140)	83.98	9.11	0.73
Impression management (SDR)	46	120 (140)	78.80	9.36	0.78
Lie scale (SDR)	29	73 (75)	53.37	7.12	0.74
Confidence bias (OCO)	–72	41.33	–1.48	12.69	
Crystallized intelligence (I)	20	96.67 (100)	69.19	12.48	
Overclaiming (OCL)	0.76	4	2.32	0.64	

Note.  $\Omega_w$  = McDonald's Omega. In parenthesis (Max) = maximal possible range for every measure. In parenthesis (Scale): P = Personality; SDR = socially desirable responding; OCO = Overconfidence; I = Intelligence; OCL = Overclaiming. Openness, Extraversion, Agreeableness, Conscientiousness, Neuroticism were measured with the Big Five Inventory (BFI-K).

### Aims of the Present Study and Hypothesis

The last comprehensive exploration of the nomological net of social desirability (SDR) measures was conducted by Paulhus (2002) and resulted in the two-tiered model described above. Since then, the overclaiming technique has been developed as a novel measure of positivity bias. Finally, an operationally similar construct, namely, overconfidence has served a similar role, primarily in cognitive psychology. As described above, all three constructs (SDR, overclaiming, and overconfidence) appear to share one feature—a positive departure from reality. We will use the term *positivity bias* to refer this shared feature.

The aim of the current study is to empirically test whether the conceptual and operational overlap can be recovered when analyzing the shared correlation matrix. The preceding overview of theoretical foundations and operationalizations suggests that all three constructs tap a response distortion related to a positivity bias. We could find no studies that providing empirical verification of whether SDR, overclaiming, and overconfidence are really part of one nomological network sharing a common core. Such a finding would *not* preclude specific variance, that is, additional variance unique to each measure. In this way, the three measures could represent facets of positivity bias. As Ziegler and Bäckström (2016) put it when discussing traits and facets: “[ . . . ] the trait score reflects a common core and facet scores a proportion of this core plus some specific variance” (p. 108).

In sum, we hypothesize a common core between measures of social desirability, overclaiming, and overconfidence—all reflecting a positivity bias. Furthermore, we assume that each

measure also captures specific variance. Clear demonstration of a common core would support the interchangeable use of positivity bias measures. In addition, inclusion of closely related constructs such as intelligence, the Big Five and grandiose narcissism, should help clarify the unique information tapped by each of the three positivity bias measures.

### Method

#### Sample and Procedure

Students of different fields of study from a large German university took part in an online survey. Originally, the sample consisted of  $N = 1,617$  students. We excluded participants who stopped at the first or second page and those who had a very short response time. In the end, a data set of  $N = 798$  (female  $N = 572$ ) were analyzed. Average age was 24.9 ( $SD = 5.16$ ).

#### Measures

A total of nine measures were employed. Structured in categories of SDR, overclaiming, overconfidence, crystallized intelligence, and personality, each test is described in detail below. Descriptive statistics and reliability estimates are provided in Table 1.

**Socially Desirable Responding.** We used four SDR instruments that are often applied in research and practice to capture SDR. To assess SDE and IM, we used a German version of the Balanced Inventory of Desirable Responding (BIDR) “Ein Inventar zur Erfassung von zwei Faktoren sozialer Erwünschtheit” [An Inventory Assessing Two Factors of

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Socially Desirable Responding] (Musch, Brockhaus, & Bröder, 2002). Each scale consists of 10 items. Respondents rate the extent to which items are relatively consistent with their typical behaviors or attitudes. Items were rated on a 7-point Likert-type scale (1 = *not true* to 7 = *absolutely true*). The total scores for each scale were used as representations of SDE and IM. One example for the SDE scale is “I am really certain of my judgments” and for the IM scale, “I never swear.”

The second measure of SDR was the Lie scale (15 items) from the German version of the Minnesota Multiphasic Personality Inventory-2 (MMPI-2; Hathaway, McKinley, & Engel, 2000). According to the manual, this scale can be used to judge whether other MMPI-2 scales are valid and whether a response distortion has occurred. A 5-point Likert-type scale (1 = *very inapplicable* to 5 = *very applicable*) and the sum score (Lie scale) were used in this study. One example item is “I do not always tell the truth.”

Finally, German versions of the Edwards SDR scale (24 items) and the Marlowe-Crowne scale (23 items; Lück & Timaeus, 1969) were administered in the same 5-point Likert format as above. For the Edwards scale (e.g., “I tend to have a restless sleep and often awake during the night”) the items were summed. The total scores for each Marlowe-Crowne subscale were used as representations of *attribution* of desirable behavior (first factor; e.g., “No matter who I am talking to, I am always a good listener”) and the *denial* of undesirable behavior (second factor; e.g., “I often have dreams that I better keep to myself).

**Overclaiming.** Two German overclaiming questionnaires were used. Paulhus (2011, p. 160) pointed out that whereas real items are relatively stable, the status of foils could change overnight. Items whose content is from popular culture are especially unstable, which is why it is necessary to use a culturally relevant version. The first version was made available by the Institut zur Qualitätsentwicklung im Bildungswesen [Institute for quality development in education] in Berlin (see Hülür, Wilhelm, & Schipolowski, 2011). It is a self-report measure of academic and everyday knowledge including foils. Each item is rated on a 7-point Likert-type scale (1 = *never heard of it* to 7 = *know it very well*). Item content includes three categories: physical sciences, civics, and humanities. Responses were dichotomized between 1 and 2. If a “real” item was given a rating of 2 or higher, it was classified as a hit. Similarly, such a response to a foil was rated as a false alarm. For example, participants have to rate their familiarity with the item “prosa.”

The second overclaiming questionnaire was the Vocabulary and Overclaiming Test (VOC-T; Ziegler et al., 2013). This test consists of 15 items (e.g., “warning”) containing three foils. The VOC-T discriminates between the four knowledge domains of science, humanities, civics, and mechanics. Two indices labeled *accuracy* (the hits

considering the false alarms) and *bias* (generally answered: yes, I know it) can be calculated over these two measurements. However, lack of independence of these two indices would be a severe violation of the assumptions underlying exploratory factor analysis (EFA). Therefore, only the bias score from each overclaiming measure was used in the analyses.<sup>1</sup>

**Overconfidence and Crystallized Intelligence (gc).** Participants had to answer 30 items (verbal, numeric, and figural; each with 10 items) from the knowledge extension module of the Intelligence-Structure-Test 2000 R (Amthauer, Brocke, Liepmann, & Beauducel, 2001). For each item, the correct answer had to be chosen from five options. A total score based on the percentage of correct answers was employed. One example of a verbal item is “The first chancellor of the Federal Republic of Germany was. . . .” To measure overconfidence, participants indicated how confident they were that each answer to an item was correct (as in Stankov & Crawford, 1997) by entering a rounded percentage after answering each item. The overconfidence scores were then calculated as the difference between the mean of all overconfidence ratings and the IST total score based on all items. Negative scores therefore indicate underconfidence and positive scores overconfidence.<sup>2</sup>

**Personality Inventories.** To tap fundamental personality traits, a brief version of the Big Five Inventory (Rammstedt & John, 2005) was used. It comprises 21 items designed to measure the Big Five—four from each domain except five for Openness. The items are rated on a 5-point Likert-type scale (1 = *very inapplicable* to 5 = *very applicable*). Total scores for the five personality scales were used in statistical analyses. An example of an extraversion item is “I am full of energy and drive.”

The German version of the 40-item Narcissistic Personality Inventory (Schuetz, Marcus, & Sellin, 2004) was also included. In a forced-choice format, participants have to decide between an extremely positive, narcissistic (grandiose narcissism) alternative solution and a “normal” one. One example for the forced-choice format is “Modesty does not become me” versus “I am essentially a modest person.” Each respondent received a total score out of 40.

### Statistical Analyses

Descriptive statistics were computed with SPSS. EFA using maximum likelihood estimation was applied to all of the measures as described above. To determine the number of factors, we applied Velicer’s (1976) Minimum Average Partial test (MAP test) and parallel analysis (Horn, 1965) using the psych package (Revelle, 2016) in R. Additionally, the eigenvalue >1 rule was applied. The best solution was chosen based on interpretability. The first EFA included

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**Table 2.** Correlation Matrix of all Measures.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Extraversion (P)														
2. Agreeableness (P)	.16*	—												
3. Conscientiousness (P)	.14*	.04	—											
4. Neuroticism (P)	-.24*	-.17*	-.11*	—										
5. Openness (P)	.22*	.05	.09*	.03	—									
6. Grandiose narcissism (P)	-.07	-.05	-.06	.11*	<.01	—								
7. Edwards SDR scale (SDR)	-.36*	-.25*	-.34*	.68*	-.04	.15*	—							
8. First-factor Marlowe–Crowne scale (attribution of desirable behavior; SDR)	.16*	.29*	.33*	-.08*	.21*	-.06	-.22*	—						
9. Second-factor Marlowe–Crowne scale (denial of undesirable behavior; SDR)	-.02	-.29*	-.22*	.35*	-.04	.03	.47*	-.20*	—					
10. Self-deceptive enhancement (SDR)	-.12*	-.22*	-.14*	.22*	.03	.01	.36*	<.01	.34*	—				
11. Impression management (SDR)	-.04	-.11*	.06	.10*	-.01	-.01	.11*	.03	.21*	.26*	—			
12. Lie scale (SDR)	.07	-.22*	-.29*	.22*	-.03	.09*	.32*	-.29*	.52*	.25*	.11*	—		
13. Confidence bias (OCO)	.07*	-.07	.01	-.11*	.05	-.08*	-.06	.03	.02	-.03	.11*	-.02	—	
14. Crystallized intelligence (I)	-.02	.05	-.02	.04	.02	-.05	.32*	.19*	.21*	.38*	.48*	.43*	.46*	—
15. Overclaiming (OCL)	-.11*	-.02	-.06	-.05	.02	-.01	.07*	-.03	-.04	.03	.35*	.15*	.26*	.38*

Note. In parenthesis (Scale): P = Personality; SDR = socially desirable responding; OCO = Overconfidence; I = Intelligence; OCL = Overclaiming.  
\* $p < .05$ .

only the positivity bias measures. This step should reveal any common core and how the specific variances cluster. In a second EFA, all other measures were also included allowing more clarity of the specific variance within each positivity bias measure.

## Results

Table 2 presents the correlation matrix of all measures. Among notable values were the correlation between the Edwards SDR scale and neuroticism ( $r = .68, p < .05$ ) and the correlation between the MMPI Lie scale and the first factor of the Marlowe–Crowne scale (attribution of desirable behavior;  $r = .52, p < .05$ ).

The correlations between the SDR scales and the overclaiming scale were mostly low. The sole exception was a moderate and significant correlation ( $r = .35$ ) between overclaiming and the IM scale. Similar size correlations were found for the relations between the SDR scales and the overconfidence bias. The highest and significant correlation was between overconfidence bias and IM ( $r = .11$ ). The correlation between overconfidence and overclaiming was moderate and significant ( $r = .26$ ). Thus, there was no strong evidence for convergent validity.

The correlations among the personality scales (apart from openness and grandiose narcissism) were consistently moderate. The highest correlation between overclaiming and personality occurred for extraversion ( $r = .11, p < .05$ ).

For overconfidence, the highest correlation was with neuroticism ( $r = .11, p < .05$ ). This pattern can be considered discriminant validity evidence. For the SDR measures such supposedly discriminant, correlations with personality scores were often much larger, especially for the Edwards scale. Thus, discriminant validity evidence for those scales is problematic at best. Notably, crystallized intelligence correlated substantially with overconfidence ( $r = .46$ ), overclaiming ( $r = .38$ ), and the SDR scales ( $.19 < r < .48$ ).

Two EFAs were calculated. In the first step, all eight measurements of positivity bias were analyzed. According to the chosen factor retention rules, factor solutions with one (MAP test), two factors (parallel analysis), and three factors (eigenvalue >1 rule) were extracted using a Promax rotation. After inspecting the three solutions, the three-factor solution was chosen as the most interpretable. The first three eigenvalues were 2.34, 1.22, and 1.05. The amount of variance explained by this solution was 57.63%. Table 3 presents the factor loadings and shows that the first factor was marked by the Marlowe–Crowne scale “denial of undesirable behavior” and the MMPI Lie scale. Furthermore, a small loading was on the Edwards SDR scale. This factor was called *Denying common faults*. The second factor comprised SDE and a small loading on IM and was named *Self-deceptive enhancement* (SDE). Finally, the third factor included the Marlowe–Crowne scale “attribution of desirable behavior” and a small negative loading on the MMPI Lie scale and was named *Claiming unlikely virtues*. In this

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**Table 3.** Factor Loadings After Promax Rotation (First Step).

	Denying common faults	Self-deceptive enhancement	Claiming unlikely virtues
Edwards SDR scale	0.39		
Second-factor Marlowe–Crowne scale (denial of undesirable behavior)	1.04		
Minnesota Multiphasic Personality Inventory Lie scale	0.48		–0.27
First-factor Marlowe–Crowne scale (attribution of desirable behavior)			0.50
Self-deceptive enhancement		0.99	
Impression management		0.23	
Confidence bias			
Overclaiming			

Note. SDR = socially desirable responding. Loadings smaller than .20 are not displayed.

**Table 4.** Intercorrelations of Positivity Factors.

	Denying common faults	SDE	Claiming unlikely virtues
Denying common faults	—		
SDE	.33	—	
Claiming unlikely virtues	–.31	–.15	—

Note. SDE = self-deceptive enhancement.

analysis, overclaiming and overconfidence were not explained substantially by any of the factors. Table 4 presents the factor intercorrelations between all three factors. Most of the correlations were small to moderate. The highest correlation ( $r = .33$ ) occurred between the *Denying common faults* and the *SDE* factor.

In a next step, an EFA with the eight measurements of positivity bias, personality, and crystallized intelligence was investigated. According to the chosen factor retention rules, factor solutions with two (MAP test) to six factors (parallel analysis and eigenvalue >1 rule) were extracted using a Promax rotation. After inspecting each of the factor solutions, the six-factor solution was chosen as the most plausible. The first six eigenvalues were 3.12, 1.61, 1.31, 1.20, 1.13, and 1.06. The amount of variance explained by this solution was 62.88%. Table 5 presents the factor loadings. The table shows that the first factor was marked by neuroticism and the Edwards SDR scale. Additionally, there were small loadings on grandiose narcissism and a small negative cross-loading on extraversion. This factor was called *Alpha bias* following Wiggins (1964). The second factor included the Lie scale, both (attribution of desirable behavior and denial of undesirable behavior) Marlowe–Crowne scales, extraversion, and low agreeableness. Again referring to Wiggins (1964) the factor was called *Gamma bias*. The third factor was marked by SDE and IM and was labeled *egoistic bias* (see Paulhus, 2002). The third factor is

a pure SDR factor as it only loads SDR scales. The fourth factor was characterized by conscientiousness (C). The fifth factor comprised the Marlowe–Crowne scale attribution of desirable behavior, extraversion, openness, and agreeableness and was named *Plasticity* (DeYoung, 2006). Finally, the sixth factor included the overconfidence bias and a negative loading from crystallized intelligence. Following Stankov and Crawford (1997), we labeled this factor *Confidence*. Of importance, the overclaiming score was again not explained substantially by any of the factors.

Table 6 presents the factor intercorrelations among all six factors. Most of the correlations were moderate—apart from the small correlation between Confidence and all other factors ( $-.04 < r < .15$ ). The highest correlation ( $r = .58$ ) occurred between the Alpha bias and the egoistic bias. A second-order EFA of these correlations resulted in a two-factor solution (Table 7). Confidence was not substantially explained by either of the two factors. The other five first-order factors mostly fell on the first factor. Only the egoistic bias factor was strongly loaded by the second factor but also had a substantial loading from the first factor. Thus, the first second-order factor contained a mixture of SDR variance and personality (see Ziegler & Bühner, 2009) and was labeled *General SDR factor*. The second higher order factor basically reflected *Egoistic bias*.

## Discussion

The main goal of this study was to investigate the nomological network of SDR, overclaiming, and overconfidence measures in low-stakes settings. Based on the theoretical underpinnings and similarities in operationalization, a common core reflecting positivity bias was hypothesized. Personality, grandiose narcissism, and crystallized intelligence were also assessed to further specify unique variance for the different measures. To this end, a test battery including a variety of measures from all domains as well as

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**Table 5.** Factor Loadings After Promax Rotation.

	Alpha bias	Gamma bias	Egoistic bias	Conscientiousness	Plasticity	Confidence
Neuroticism	.88					
Edwards SDR scale	.85					
Grandiose narcissism	.21					
Lie scale		.67				
Second-factor Marlowe–Crowne scale (denial of undesirable behavior)		.55	.25			
Self-deceptive enhancement			.65			
Impression management			.46			
Conscientiousness				.91		
First-factor Marlowe–Crowne scale (attribution of desirable behavior)		-.34	.26		.55	
Extraversion	-.21	.38			.49	
Openness					.40	
Agreeableness		-.26			.39	
Confidence bias						.74
Crystallized intelligence						-.45
Overclaiming						

Note. SDR = socially desirable responding. Loadings smaller than .20 are not displayed.

**Table 6.** Factor Intercorrelations.

	Alpha	Gamma	Egoistic	Conscientiousness	Plasticity	Confidence
Alpha	—					
Gamma	.28	—				
Egoistic	.58	.22	—			
Conscientiousness	-.31	-.26	-.11	—		
Plasticity	-.39	-.15	-.21	.37	—	
Confidence	-.04	.15	.11	.08	.05	—

**Table 7.** A Second-Order EFA.

	1	2
Alpha	.72	.41
Gamma	.36	
Egoistic bias	.51	.72
Conscientiousness	-.63	.26
Plasticity	-.55	

Note. EFA = exploratory factor analysis. Loadings smaller than .20 are not displayed.

personality and crystallized intelligence was administered to a large sample of students.

Based on the current findings with our specific sample, empirical support for the idea of a common core could not be found. Instead, the findings showed that there were three factors underlying the different measures of positivity bias. Interestingly, overclaiming and overconfidence did not load on any of the three factors, indicating that these measures have more specific than shared variance. In a second step,

six factors were extracted from all positivity bias measures, a Big Five measure, and a test of crystallized intelligence. Again, overclaiming was not explained by any of those factors. Moreover, only one of the factors was exclusively marked by SDR scales. This factor was labeled egoistic bias and contained the scales SDE, IM, and both (attribution of desirable behavior and denial of undesirable behavior) Marlowe–Crowne scales. A second-order factor analysis of the intercorrelations between the first-order factors revealed two second-order factors. Here, overconfidence was no longer explained by either factor. Moreover, the measures of SDR, overclaiming, and overconfidence did not fall onto the same factor. Again, the egoistic bias factor separated itself and marked the second factor. To sum up, the different positivity bias measures were not closely related, and they clearly did not share a common core.

#### Measures of Socially Desirable Responding

SDR was operationalized in the current study with four different commonly used scales: the Marlowe–Crowne Scale



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(Crowne & Marlowe, 1960), the Edwards (1957) SD scale, the BIDR (Paulhus, 1998), and the Lie scale from the MMPI. In the first step, variance in these scales was explained by three factors—not the expected one-factor solution reflecting the shared common core. Consequently, the content of each measure captures unique variance. To account for the often reported shared variance with personality, a Big Five and a grandiose narcissism measure were added as well. This step also allowed to further characterize the specific variance composition of each measure. A second EFA yielded a six-factor solution. Four of them were marked by SDR measures. The first factor, Alpha bias, was marked by the Edwards SDR scale, neuroticism, grandiose narcissism, and by a negative cross loading on extraversion. In accordance with Wiggins, who also found the Edwards scale marking his first factor, the factor was labeled Alpha bias. Second, the Gamma bias was characterized by the Lie scale, the first and the second factors of the Marlowe–Crowne scale, and two personality scales extraversion and agreeableness. Again labeling was based on Wiggins’s findings, which showed a factor marked by the Lie scale. Factor three was labeled egoistic bias factor and the fifth factor, labeled plasticity, was marked by the first scale of the Marlowe–Crowne scale (attribution of desirable behavior) and the three personality scales extraversion, openness, and agreeableness. The term *egoistic bias* was borrowed from Paulhus’s (2002) taxonomy and reflects the theme inherent in SDE and IM (agency). The label “plasticity” was borrowed from DeYoung (2006). Interestingly, this factor has no substantial loadings on any of the SDR or other positivity bias measures. It has to be noted here that Paulhus (2002) argued that the egoistic bias is associated with Alpha. This, however, does not mean that the factors are isomorphic. In fact, our results replicate those findings revealing a correlation of .58 between the factors.

Importantly, the factor intercorrelations in Table 6 underline the problematic overlap between the SDR scales and personality test scores. Thus, the present findings are further evidence showing that the social desirability scales and personality measures are difficult to differentiate—which originally caused the debate on substance versus style. Exceptions were the SDE and the IM scale, which yielded the egoistic bias factor. This factor was virtually free of substantial overlap with the other measures used, specifically the personality measures. However, the factor correlated with the Alpha bias reflecting shared variance most likely due to SDR (see Paulhus, 2002). Thus, there seems to be a common core here that reflects an egoistic theme (Paulhus, 2002) free of substantial overlaps with personality.

Thus, the first-order EFA revealed interesting loading patterns with regard to the pairings of SDR measures and personality. Only neuroticism and the Edwards scale both were exclusively explained by the same latent factor, Alpha. This is somewhat surprising considering Paulhus’s (2002)

earlier findings which put the Edwards scale on Alpha but Emotional Stability somewhere between Alpha and Gamma. However, Paulhus used residuals of self-ratings where other-ratings had been partialled out. Thus, bias variance was operationalized more directly as the deviation of the self-rating from the view others have. This idea was recently propagated in a more differentiated way by McAbee and Connelly (2016). Those authors used the term *identity* to describe the deviation of the self-rating from the view shared by the self and others on the target. Our finding, that is, the Edwards scale and neuroticism loaded by the same factor, indicates that the substance overlap between the Edwards scale and personality might lie within the domain of neuroticism.

Similar arguments could be made for the second factor, Gamma bias. Here it was Extraversion that loaded on the factor otherwise dominated by SDR scales. The plasticity factor was mainly marked by personality test scores (Extraversion, Openness, Agreeableness). However, the strongest loading occurred for the Marlowe–Crowne scale claiming positive behavior. Thus, this factor also represents a mixture of substance and style. Here, the agentic theme is very obvious. The third factor, egoistic bias, did not explain substantial amounts of variance within any of the personality scores. This could at first glance be viewed as support for these scales as hinted at above. However, two arguments counter this initial impression. First, this factor was strongly correlated with the Alpha bias factor. Second, the second-order factor analysis located this factor on both second-order dimensions. Thus, despite the strong common core reflecting an egoistic bias, both measures still contain substantial amounts of substantive variance evident in the cross-loading in the second-order EFA as well as in the correlation between egoistic bias and alpha bias. However, the latter two findings again underscore the role of neuroticism in bridging the gap between SDR and personality measures. This seems intuitive considering the clearly undesirable connotation of neuroticism even under low-stakes conditions. To sum up, the first-order EFA revealed interesting loading patterns confirming prior research findings in terms of general SD factors (Alpha and Gamma) and themes (especially egoistic). The previously reported problematic overlap between personality and SDR measures was also replicated in a second EFA. However, a more fine-grained picture revealed that specific personality–SDR relations could be distilled.

Of further importance is the second-order EFA based on the intercorrelations between the six first-order factors. The results speak against the possibility of completely disentangling SDR and personality. We found a very strong first factor with substantial loadings from all first-order factors (including Conscientiousness showing that there also was variance due to SDR). In addition, we found a second higher order factor mostly reflecting egoistic bias. Perhaps Paulhus’s

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idea of two themes might be reflected in the emergence of two higher order factors (also see Wiggins, 1964). It could even be argued that the second higher order factor might have more substance and less style.

Alternatively, the first factor could reflect a general SDR factor (Bäckström, 2007). The fact that the egoistic bias formed an additional factor might be due to the anonymous situation. Had the data been collected in a high-stakes assessment situation where people are likely to distort a broader variety of personality traits, a different result might have occurred (Schmit & Ryan, 1993). In such a setting, a one-factor solution may be just as likely as a two-factor solution clearly reflecting the two themes agentic and moralistic (communal). The latter could occur if specific job profiles would call for those themes (Pauls & Crost, 2005). In fact, Pauls and Crost (2004) argued that “in faking conditions social desirability scales do not seem to provide additional diagnostic information beyond that derived from personality scales.” (Pauls & Crost, 2004, p. 1149).

Regardless of these interesting loading patterns and specific relations between measures of substance and style, a first conclusion with this special sample is that typical SDR measures form a close nomological network. Moreover, this network is strongly entwined with substance, that is, personality measures. As a consequence of the present study, those scales should not be used in low-stakes settings until the substance versus style question is answered. The current findings dispute the possibility of using SDR scales to measure a positivity bias that is independent of substance.

Interestingly, neither overclaiming nor overconfidence was related to either of the factors described so far. Therefore, it is reasonable to assume that there is no overlap between the constructs behind these operationalizations negating the assumptions of a common core or even a shared nomological net.

### Overclaiming

No factor explained substantial variance in overclaiming despite some overlap at the level of zero-order correlations (e.g., with crystallized intelligence). This shows the importance of analyzing correlational patterns instead of relying on single zero-order correlations when trying to explore the nomological net of several related constructs. In fact, the communality for overclaiming was nearly zero. This supports the notion that overclaiming can be measured free from personality or cognitive ability. Ziegler et al. (2013) also confirmed the independence of overclaiming and fluid intelligence. This also means, though, that overclaiming has its own nomological network not including relationships with SDR scales, personality nor intelligence. In Paulhus's (2002) model of SDR, overclaiming can be located within self-enhancement (Paulhus et al., 2003). The current results show that this earlier finding by Paulhus et al. could not be

replicated, at least when self-enhancement is measured with common SDR scales. It is important to note that this does not necessarily show that overclaiming does not capture self-enhancement or SDR. In fact, the opposite might be true. Due to the critical overlap between SDR scales and personality, overclaiming measures might allow a more direct access to the actual psychological process underlying self-enhancement. However, further research utilizing experimental designs and not only relying on correlational analyses is necessary to test this assumption. Nevertheless, the finding that overclaiming and SDR measures do not share a common core or nomological network also means that overclaiming measures are free of the typical problems associated with SDR measures namely the substance versus style issue.

### Overconfidence

The sixth factor, Confidence, was characterized by the overconfidence scale, and the crystallized intelligence measure. This factor is therefore best described as a knowledge factor or a metacognitive ability factor. More important though, there was no substantial loading of this factor on overclaiming indices or SDR scales. Moreover, the correlations of this factor with the factors representing SDR and personality were very low. In fact, within the second-order EFA no substantial loading on either of the two factors occurred. Thus, based on the current findings, overconfidence cannot be recommended as a way to operationalize overclaiming. Likewise, overconfidence cannot be regarded as part of the nomological net of SDR measures. The findings support the notion of self-confidence as a metacognition (see, e.g., Kleitman & Stankov, 2007) rather than the idea of using overconfidence as a measure of deception (Anderson et al., 2012).

To sum up, six first-order factors named Alpha bias, Gamma bias, Egoistic bias, conscientiousness, plasticity, and confidence were found. Overclaiming was not explained by any of the six factors. Table 4 shows that the four factors of SDR were correlated with each other but not with the metacognitive ability factor confidence. Taken together, this shows that the investigated constructs do not overlap. Thus, different operationalizations of positivity bias (SDR scales, overclaiming, and overconfidence) do not share a common core or have entwined nomological networks.

### Practical Implications

With regard to the nomological network and only in low-stakes settings it is possible to separate overclaiming from personality and crystallized intelligence. By contrast, SDR measures did not turn out to be distinct from personality in this study. As discussed above, as long as it remains unclear whether the factors found represent substance or style, the



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SDR measures cannot be recommended to be used in low-stakes research settings. Exceptions here might be the scales loaded by egoistic bias—the SDE and IM scales. These two scales seem to be free of personality. However, the assessment here was conducted under anonymous and low-stakes conditions. Generalizing to other settings is not warranted. In fact, there is research supporting the use of MMPI validity scales in clinical settings (e.g., Steffan, Morgan, Lee, & Sellbom, 2010), which can be considered high stakes. A similar conclusion may be drawn regarding overconfidence, which was unrelated to any of the other SDR measures. Considering that it was not even constructed to actually capture such response distortions, we conclude that it should not be used to capture forms of positivity bias in personality research.

The outlook for overclaiming is more promising. Researchers interested in whether their respondents have a tendency to present themselves in an overly positive way could try to gauge this by integrating an overclaiming measure. There is empirical evidence supporting this claim. Bing et al. (2011) provided first empirical evidence to lend support to the notion of overclaiming capturing SDR. In their study, hierarchical regression analyses were used to examine whether two SDR measures or overclaiming acted as suppressor when predicting performance. In the first step, cognitive ability was entered as a covariate and was a significant predictor of performance. In a next step, achievement striving was added and incrementally predicted performance. In the third step, two SDR measures failed to add to the prediction of performance. These results were illustrated for both instruction conditions: honest and fake good response described above. Only when adding overclaiming in the fake good condition did a case of classical suppression occur. This result was interpreted as showing that the overclaiming technique taps individual differences in faking.

Additional validation comes from Kemper and Menold (2014), who showed that self-enhancement measurements, among them an overclaiming test (VOC-T), are good predictors for identifying falsification in surveys. Those authors investigated the stylistic responding between genuine and falsified interviews and the results showed that “falsifiers generally overestimate the putative interviewees’ tendency to self-enhance by exaggerating positive and minimizing negative attributes or by overclaiming knowledge” (Kemper & Menold, 2014, p. 97). Finally, Paulhus and Dubois (2014) demonstrated the value of measuring overclaiming tendencies in assessing class performance. Whereas knowledge accuracy predicted better final course grades, knowledge overclaiming predicted poorer final grades. Apparently, those who exaggerate their abilities pay a price in overall educational performance.

It should be mentioned that there are also studies casting a less positive light on the interpretation of overclaiming as

a positivity bias. For example, Feeney and Goffin (2015) did not advise the use of overclaiming for detecting general faking but suggested instead to use overclaiming items with specific job-relevant contents. Whether this suggestion really improves the ability to capture positivity bias still needs to be seen. Regardless, the current study, as well as the cited research, indicates that overclaiming is more likely than SDR or overconfidence to capture positivity bias independent of personality and crystallized intelligence.

### Limitations and Outlook

For the first time, a nomological network of SDR, overclaiming, and overconfidence was empirically investigated. Further studies are needed to confirm these results by conducting a confirmatory factor analysis and by varying samples and contexts. Note that the disproportionate representation of the three types of positivity bias may have affected our results. In particular, we included more SDR tests than other tests to cover the broader variety in these measures.

Only aggregated scores for overclaiming, overconfidence, and crystallized intelligence were used. A more fine-grained approach differentiating between different knowledge areas should be conducted in the future to ensure that specific relations were not obliterated by aggregating. We would argue, however, that overclaiming and overconfidence are much more homogeneous, and it seems unlikely that using more of these measures would substantially change the findings.

In addition, the inclusion of more extensive inventories<sup>3</sup> for measuring personality and intelligence will be important for broadening the nomological network. Of interest would be a detailed description of which personality facets explain variance in the different constructs. This extension would further help disentangle substance and style. Moreover, we cannot make a general statement about narcissism because we used the NPI that captures only grandiose narcissism and neglects the vulnerable form of narcissism.

As described, SDR is dependent on the kind of receiver. The current study was an anonymous online survey where there was no clear audience. Hence, the IM component of SDR may not play a role in our results. Without an audience, one cannot implicate this most blatant kind of SDR, often called faking (Ziegler et al., 2015). However, research by Pauls and Crost (2004) indicated that distorted self-presentation depends on the situational context and not on the audience. Their example deals with managerial skills which are expected to reflect high agency. Pauls and Crost could demonstrate that SDR scores were faked just as personality scales were. Future research should therefore investigate the nomological network of these constructs in different settings such as real applicant settings.

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To sum up, the current study found that the implicit assumption of a common core within a shared nomological network of SDR measures, overclaiming, and overconfidence could not be empirically supported. Of all the measures, only overclaiming turned out to be fully independent of personality and crystallized intelligence.

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### Notes

1. We also conducted the EFA with the linearly dependent scores, but the results were the same.
2. We also conducted the EFA with separated overconfidence and  $g_c$ , but the results were the same.
3. It should be mentioned that the Lie scale of the MMPI-2 was originally not developed or validated as a stand-alone tool or a Likert-type scale.

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## 8.2 The Nature of Faking—A Homogeneous and Predictable Construct?

### The Nature of Faking—A Homogeneous and Predictable Construct?

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Faking remains an unsolved problem in high stakes personality assessments. Importantly, the evaluation of so-called faking-detection scales differs between psychological disciplines. One of the reasons for this might be the unclear nature of actual faking behavior. In the present study, we aimed to apply a modeling technique introduced by Ziegler et al. (2015) that allows to capture interindividual differences in faking behavior as a latent variable. We used this approach to isolate variance due to experimentally induced faking good and faking bad of the Big Five, and we predicted this variance with a variety of theoretically relevant constructs (socially desirable responding, overclaiming, and dark triad traits). We tested a sample ( $n = 233$ ) divided between two experimental conditions and  $n = 167$  persons in a control condition twice (honest/faking and honest/honest). The application of the modeling approach for all five personality domains was successful. In a second step, factor scores for all faking variables derived from these prior analyses were tested for homogeneity within each faking condition. Results showed that whereas faking was neither homogeneous within each condition (i.e., faking good vs. faking bad), nor was it homogeneous across conditions. Thus, faking is a complex psychological process that is responsive to specific situational demands. In a final step, the faking variables representing faking good and faking bad were regressed onto scores from other measures. The results indicated that the common variance shared by some social desirability scales predicted faking. We discuss theoretical and practical implications of these findings.

#### The Public Significance Statement

This study suggests that faking in personality questionnaires strongly depends on the situational context and even the questions asked. Additionally, it could be shown that faking good is influenced by Machiavellian tendencies.

*Keywords:* faking, socially desirable responding, overclaiming, dark triad, Latent Change Score Model

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The influence of faking is a pervasive topic in psychological literature. The breadth of findings varies from studies concluding that faking has a substantial effect on test scores' construct validity (Ziegler & Buehner, 2009) to studies indicating that such response distortions affect the test scores' criterion-related validity (Holden, 2007). One important research branch focuses on the detection of faking. Whereas research for most other aspects related to faking seems to yield comparable results across different psychological fields, research focusing on faking detection often yields findings seemingly in strong contrast between clinical research and research from an I/O context. Particularly the usefulness of so-called social desirability scales is being judged differently. One aspect potentially contributing to this controversy is the heterogeneous way in which faking has been operationalized and modeled. Especially modeling faking, that is capturing the unique variance associated with this psychological process, is challenging. Yet, only a conclusive modeling approach will ultimately allow to gauge the usefulness of scales aiming at detecting faking. Whereas some researchers have favored difference scores between honest and faked conditions (Baer, Wetter, Nichols, Greene, & Berry, 1995), others have relied on between-person designs comparing, for example, applicants and job incumbents (Zickar, Gibby, & Robie, 2004) or known-group designs (Chmielewski, Zhu, Burchett, Bury, & Bagby, 2017). All of these approaches have advantages but are also subject to specific disadvantages. It is important to note that these differences in operationalization might impede the exploration of actual faking behavior. Here, we will utilize a methodological approach to modeling faking suggested by Ziegler, Maaß, Griffith, and Gammon (2015). Importantly, we will use a fake good and a fake bad condition, thereby trying to bridge the gap between prior contrasting findings as stated above.

In our opinion, different definitions of faking and different methods to operationalize faking have contributed to the plethora of different results. In this study, we will therefore first present a definition of faking we adhere to, and second, an approach to model it as a latent variable.

### Definition of Faking

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Terms such as social desirable responding, malingering, impression management, overreporting, underreporting, self-enhancement, or faking are often used interchangeably. Unfortunately, this ignores otherwise postulated important differences. Paulhus (2002) reviewed the abundant literature and based the interpretation of his empirically driven analyses on this to conclude that social desirability is a hierarchical construct. Underneath this umbrella term, he postulated four specific facets, based on the theme of the bias and the target. The four facets are self-deceptive enhancement and agency management reflecting an egoistic bias and self-deceptive denial and communion management reflecting a moralistic bias. Importantly, only agency and communion management are considered conscious and deliberate acts.

When practitioners use scales to detect faked answers it is often exactly such conscious and deliberate distortion that is being looked for. Yet, some of the scales used were specifically designed to capture unconscious response distortion. The lack of attention to this difference has recently been pointed out for the field of clinical psychology (Perinelli & Gremigni, 2016). Moreover, the term faking in most definitions clearly refers to these facets reflecting conscious response distortions. For example, Ziegler et al. (2012a) wrote, “faking represents a response set aimed at providing a portrayal of the self that helps a person to achieve personal goals. Faking occurs when this response set is activated by situational demands and person characteristics to produce systematic differences in test scores that are not due to the attribute of interest” (p. 8). One of the most basic conclusions that can be drawn from this and which is in line with earlier work by J. S. Wiggins (1973) and Paulhus (2002) is that, depending on the perceived demands of the situation, two different forms of faking can occur: faking good and faking bad. Faking good tends to occur in job contexts where applicants give a response to personality items to enhance their chances of being selected. However, even in a job context, faking bad scenarios are feasible, for example, when people do not really want to work and would rather receive unemployment compensation. Faking bad scenarios can also occur in clinical contexts where the term malingering is used, which is not uncommon as shown in several studies (Hall & Hall, 2012). We

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will use the term faking from here on, which covers faking bad (malingering) and faking good and is meant in the sense of the definition by Ziegler, MacCann, and Roberts.

Importantly, in both contexts so-called social desirability scales are often used to detect faking despite the fact that some of those scales were designed to capture unintentional response distortions. As mentioned above, whereas studies focusing on faking good often conclude that such scales are of little use (e.g., Griffith & Peterson, 2008), studies focusing on faking bad conclude the opposite just as often (Bianchini et al., 2017). Interestingly, despite the differences between a fake bad and a fake good situation that are to be assumed, prior research often only focused one of the two. This limited chances to directly compare findings.

The current study will employ the same research design to a fake bad and a fake good scenario in order to directly compare the results. Specifically, we will directly compare in how far faking bad and faking good are comparable processes and, maybe most importantly, how differences in faking can be explained with widely-used detection scales.

### **Modeling Faking**

In order to statistically model faking, researchers first need theoretical models of faking. In the literature, several faking models have been proposed (Ellingson & McFarland, 2011; Goffin & Boyd, 2009; McFarland & Ryan, 2000; Mueller-Hanson et al., 2006; Robie et al., 2007; Snell et al., 1999; Ziegler, 2011). Roughly, these models form two broad groups: On the one hand, there are models that describe how faking intentions are built. On the other hand, there are models that focus on actual faking behavior. Faking intention models deal with antecedents or determinants that lead to faking, whereas faking behavior models attempt to describe actual interindividual differences in faking behavior that occur when working on a test.

One prominent intention to fake model was described by Ellingson and McFarland (2011). In their theoretical model, they used the Valence-Instrumentality-Expectancy (VIE) theory to describe the motivation that drives faking. This theory can be traced back to the formulation of expectancy theory by Vroom (1964) and to the expectancy-value model by Fishbein and Ajzen (1975) which have had a strong influence on most fields of psychological research. In addition to



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three proximal factors, valence (personal satisfaction with the aid of faking), instrumentality (perceived necessity of faking), and expectancy (confidence in the ability to fake successfully), the ability to fake is an important determinant in this model. Goffin and Boyd (2009) described a similar faking model. However, their model differed in three essential ways from Ellingson and McFarland's model: "its focus on item-level responding" (Goffin & Boyd, 2009, p. 153), the perceived ability to fake, and "a direct causal effect of perceived ability on the motivation to fake a given item" (Goffin & Boyd, 2009, p. 154). They complemented the model with two factors: first, the need to fake (e.g., the need to get a job or the wish to claim disability), and second, the perceived discrepancy between the desired response and the real response to the item. Thus, the two models exemplify the two different forms mentioned above: models dealing with faking intentions and models dealing with faking behavior.

Whereas Ellingson and McFarland (2011) argued that "prediction of behavior is a messy endeavor" (p. 326), Mueller-Hanson et al. (2006) empirically demonstrated that intentions to fake are indeed related to faking behavior. The faking behavior model by Mueller-Hanson et al. (2006) is a combination of the models by McFarland and Ryan (2000) and Snell et al. (1999). It contains antecedents to the intention to fake (i.e., perceptions of the situation, willingness to fake, ability to fake, conscientiousness, and emotional stability), which then lead to faking behavior. In all of these models, faking behavior is regarded only as an outcome. Differences in actual faking behavior are mostly not targeted, which is most likely a tribute paid to the difficulties involved in capturing these differences.

Models focusing on actual faking behavior have therefore mostly relied on qualitative data. Robie et al. (2007) focused on actual faking behavior on noncognitive measures and employed a verbal protocol analysis. They were able to show that participants differ in their motivation to fake. Moreover, differences in actual faking behavior manifested in the way the response scale was used. Relying on quantitative data, these differences were categorized into three response styles: honest responding, slight faking, and extreme faking (Zickar et al., 2004). Ziegler (2011) also used a think-aloud technique to investigate actual faking behavior and

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proposed a model that links personality and situational demands to interindividual differences in faking. This model is based on the idea that item responses are based on four distinct phases: item comprehension, information retrieval, judgment, and mapping. It was proposed that personality differences and differences in situational perception influence all of these four phases. Of interest to this study is that Ziegler proposed that dark personality traits such as narcissism but also the tendency to overclaim particularly influence the mapping phase of item answering (i.e., the selection of the answer category). If this were true, dark personality traits or overclaiming should contribute to differences in faking behavior.

More specifically, there is some research that has focused on how faking is related to narcissism, Machiavellianism, and psychopathy (Maaß & Ziegler, 2017; Paulhus, 1998; Paulhus & Williams, 2002). The construct most scrutinized is narcissism. Paulhus (1998) explained, “self-enhancement has traditionally played a central role in diagnosing the narcissistic personality” (p. 1198). Along this line of thinking, Maaß and Ziegler (2017) varied situational demands and reported that “narcissists always promoted themselves more favorably” (Maaß & Ziegler, 2017, p. 487). However, such findings have often involved other ratings or complicated experimental setups. Thus, actual faking behavior has usually not been directly modeled. As was mentioned before, the main reason for this could be the lack of a method that can be used to capture interindividual differences in faking behavior.

In other studies, faking was measured with questionnaires for measuring response distortion such as scales for measuring socially desirable responding. Bensch et al. (2017) investigated the nomological network of scores derived from scales measuring socially desirable responding, overclaiming, and overconfidence as the three most widely used response distortion measures and were able to show that only overclaiming scores seem to be distinct from personality and crystallized intelligence. Self-deceptive enhancement and impression management were also found to be largely but not totally independent of these other constructs. The review by Perinelli and Gremigni (2016) summarized a lot of clinical studies on social desirability in clinical settings. In their conclusion those authors also stress the problem of differentiating between

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variance due to socially desirable responding and ~~due to~~ actual personality differences in such scales. Thus, studies using such scales to identify faking and explore its impact on a test score's psychometric properties are running the risk of confounding differences in faking with real personality differences.

To overcome this problem, Ziegler et al. (2015) proposed a modeling approach that is based on latent difference score models (LDSM; McArdle, 2001) and factor mixture models (FMMs). LDSMs allow researchers to capture quantitative differences between faked and honest responses. FMMs allow researchers to model qualitative differences in faking behavior, that is, to distinguish between slight and extreme faking. It is important to mention that this model allows researchers to capture actual differences in faking behavior, which can then be predicted by other assessed constructs. Through this, it is possible to explore the nature of faking and to investigate its nomological network. For instance, Ziegler et al. (2015) investigated the personality domain of conscientiousness and how corresponding test scores were affected by faking behavior. Findings showed sufficient variance in faking behavior but did not support the idea of slight and extreme faking. In addition to Ziegler and Buehner (2009) and Mueller-Hanson et al. (2006), this was one of the few times a statistical model that could specify actual faking behavior was postulated and tested. The present study will also utilize this modeling approach by Ziegler et al. (2015) but without the FMM part given that the idea of faking styles was not supported in prior analyses (Ziegler & Kemper, 2013).

Before describing the aims and the hypotheses of the present study, we want to stress the importance of faking for clinical as well as I/O contexts as evidenced by the many studies in both research fields. From a theoretical perspective the corresponding terms faking bad and faking good seem to imply similar psychological processes. However, this has not been directly tested to the best of our knowledge. Moreover, considering that social desirability scales are more successful in clinical settings (Steffan, Morgan, Lee, & Sellbom, 2010) than in I/O contexts (Griffith & Peterson, 2008) it could even be assumed that the psychological processes underlying faking good and faking bad differ. Yet, considering that faking is influenced by the situation and

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the person, it is important to keep one of these influences constant in order to compare faking good and faking bad processes. We chose to keep the context constant thereby aiming at similar situational influences. Assuming that faking good and faking bad are likely behaviors in I/O contexts but not necessarily in clinical contexts, we chose such a context. While this limits generalizability, it is still likely that the findings are of importance to both contexts.

To sum up, there is empirical and theoretical support for the idea of faking as a result of a person-situation interaction. The variance caused by this interaction can successfully be captured in latent variable models. Such models allow researchers to further investigate the aspects of personality that underlie faking behavior. Finally, it is reasonable to assume that faking bad and faking good do not represent the same psychological process which would explain why prior studies from an I/O context came to different conclusions than studies from a clinical context with regard to judging the usefulness of social desirability scales.

### **Aims of the Present Study and Hypotheses**

#### **Replication and Expansion**

First, we wanted to replicate the analyses by Ziegler et al. (2015) and extend them to all domains of the five factor model (FFM): Extraversion, agreeableness, neuroticism, openness, and conscientiousness. The model has so far been used only for conscientiousness (Ziegler et al., 2015). Research has shown, however, that faking can affect all aspects of personality that are relevant to a specific job (Birkeland, Manson, Kisamore, Brannick, & Smith, 2006). Scores on conscientiousness and emotional resilience (neuroticism) seem to be important in all work areas and are, therefore, always susceptible to distortion in high stakes settings (Ziegler & Buehner, 2009). Thus, the present study used specific job ads that also emphasized the characteristics of extraversion, agreeableness, and openness to ensure faking in all domains. Furthermore, we used both fake good and fake bad groups to test the model for both faking situations and to further our understanding of the actual psychological processes underlying faking. Based on factor scores from modeling faking for each domain, we also tested whether faking across the five domains can

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be explained by one latent variable. This idea of a homogeneous faking variable acting across all five domains is often (at least implicitly) assumed when talking about faking.

### **Faking Good versus Faking Bad**

Second, we investigated whether the psychological processes of faking would be found to be homogenous across faking conditions. That is, we tested models of faking bad and faking good for measurement invariance.

### **The Nature of Faking**

Besides modeling faking as a latent variable, we tested the predictive power of several constructs with regard to actual faking behavior. This allows a head-to-head comparison of widely used faking-detection scales with regard to detecting faking bad and faking good. On the basis of prior research, we utilized overclaiming, self-enhancement, impression management, and the dark triad as the most promising candidates for constructs underlying faking behavior. With regard to the study by Bensch et al. (2017), we expected that overclaiming, self-deceptive enhancement, and impression management scores would predict faking because these scores have been found to be largely independent of other scores capturing other constructs such as crystallized intelligence or the the Big Five. With respect to the dark triad, we expected an influence of narcissism scores especially within the faking good condition. With respect to Machiavellianism scores, we expected a positive relation with faking because of the definition that respondents who score high on Machiavellianism “behave in a cold and manipulative fashion” (Paulhus & Williams, 2002, p. 557). With respect to psychopathy scores and the definition of antisocial behavior, we expected only a small correlation with faking. One result of these analyses will be insight into the ability of social desirability scales to identify differences in faking good and bad.

## **Method**

### **Sample and Procedure**

The total sample consisted of  $N = 400$  participants. The experimental group (EG) included  $n_1 = 233$  (87.7% female) participants, and their average age was 33.98 ( $SD = 15.27$ ). They were recruited from two distribution lists of a German university. The first list is a participant list with

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more than 5.000 volunteers including students but mostly people from the community. The second list is a student list. Participants were rewarded with ten Euro or course credit. The data from the control group (CG) were originally collected for the study by Ziegler and Buehner (2009). This subsample consisted of  $n_2 = 167$  (76.6% female) participants, which were mainly undergraduate students who also received course credit.

### Measures

We used a total of eight instruments. Organized into the categories of socially desirable responding, overclaiming, and personality, each test is described in detail below. Descriptive statistics and estimates of construct reliabilities supporting the test score interpretations in the first measurement occasion are given in Table 1.

**Socially Desirable Responding (SDR).** To assess self-deceptive enhancement and impression management, we used a German version of the BIDR “Ein Inventar zur Erfassung von zwei Faktoren sozialer Erwünschtheit” [an inventory for measuring two factors of social desirability] (Musch, Brockhaus, & Bröder, 2002). The two scales are represented by 10 items each. Respondents rate the extent to which items are relatively consistent with their typical behaviors or attitudes. Items were rated on a 7-point Likert-type scale (1 = *not true* to 7 = *absolutely true*). The sum scores of each of the two scales were used as representations of self-deceptive enhancement (SDE) and impression management (IM). An example item from the SDE scale is “I am really certain of my judgments,” and an item from the IM scale is “I never swear.”

As a second measure of socially desirable responding, we used the lie scale from the German version of the Minnesota Multiphasic Personality Inventory-2 (MMPI-2; Hathaway, McKinley, & Engel, 2000). According to the manual, this scale allows researchers to judge whether a test is valid or not and whether response distortion has occurred. We used a 5-point Likert-type scale (1 = *very inapplicable* to 5 = *very applicable*) and the sum score of the 15 items in this study. An example item is “I do not always tell the truth.”

Finally, German versions of the Edwards social desirability (SD) scale (24 items) and the Marlowe-Crowne scale (23 items; Lück & Timaeus, 1969) were administered with the same 5-

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point Likert-type scale as above. For the Edwards scale (example item: “I tend to have restless sleep and am often awake during the night”), we summed the items. We used the total scores for each Marlowe-Crowne subscale as representations of the *attribution* of desirable behavior (first factor; an example item is “No matter who I am talking to, I am always a good listener”) and the *denial* of undesirable behavior (second factor; an example item is “I often have dreams that I better keep to myself”).

**Overclaiming.** We used two German overclaiming questionnaires. A unique aspect of this method is the use of nonexistent items- devised things- (at most 20%) called foils. Paulhus (2012) pointed out that whereas real items are relatively stable, the status of foils can change overnight. Items whose content is from popular culture are especially unstable, and this is why it is necessary to use a culturally valid and adapted version. The first questionnaire was made available by the Institut zur Qualitätsentwicklung im Bildungswesen [Institute for quality development in education] (see Hülür, Wilhelm, & Schipolowski, 2011). It is a self-report measure of academic and everyday knowledge including foils. The test items are rated on a 7-point Likert-type scale (1 = *never heard of it* to 7 = *know it very well*). Respondents rate their familiarity with the items that were derived from three categories: physical sciences, civics, and humanities. Each category consists of 15 items containing three foils. Responses were dichotomized between 1 and 2. If a “real” item was given a rating of 2 or higher, it was classified as a hit. Likewise, such a response to a foil was rated as a false alarm. For example, participants were asked to rate their familiarity with the real existing item “prosa.”

The second overclaiming questionnaire was The Vocabulary and Overclaiming Test (Ziegler, Kemper, & Rammstedt, 2013). This test consists of 15 items containing three foils. The VOC-T discriminates between the four knowledge domains of science, humanities, civics, and mechanics. Two indices named *accuracy* (the hits considering the false alarms) and *bias* (generally answered: yes, I know it) were calculated for these measures.

**Personality inventories.** Participants completed the German version of the 240 NEO-PI-R items (Ostendorf & Angleitner, 2004). The NEO-PI-R aims to assess a five-factor model with

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six facets each and with eight items per facet. The five factors are neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. Participants were asked to rate themselves on typical behaviors. Items were rated on a 5-point Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Sum scores for the five personality scales were used in the analyses.

The second personality inventory was a German translation of the early version of the Short Dark Triad Scale (SD3; Jones & Paulhus, 2014) with 28 items. The test consists of nine items each for narcissism and psychopathy and 10 items for Machiavellianism. All were rated on a 5-point Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Sum scores were used in all analyses.

### Procedure

**Experimental group.** Participants were first asked to fill out measures of social desirability, overclaiming, and personality with regular instructions in an online survey. Here it was not allowed to leave items blank. After an average of one week, participants came to the laboratory for a second time. At this second visit, participants were randomly assigned to receive specific instructions (fake bad vs. fake good). The instructions comprised the job characteristics of an internship (see Appendix A). Importantly, within both faking conditions participants were told to imagine that they were currently unemployed. In the fake good scenario, participants were further told to imagine that they really wanted the offered internship. In contrast, participants in the fake bad condition were told that they should imagine not wanting to lose unemployment benefits due to making an internship. Moreover, all participants were told that a test expert would look at the results and search for faking. This would either result in not getting the desired internship or being reported to the unemployment agency. This was done to encourage realistic faking behavior (Rogers, 1997). After reading their specific instructions, the two experimental groups were asked to fill out the personality questionnaire according to the instructions they had received.



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**Control group.** The control group came from the study by Ziegler and Buehner (2009, p. 553) in which participants were told not to be surprised if the questions looked familiar to ones they had seen before. They were asked to answer as honestly as they could and to try not to duplicate their previous answers.

**Statistical Analyses**

All statistics were computed with SPSS (Statistical Packages for the Social Sciences) version 20.0, the lavaan package (Rosseel, 2012) and the psych package (Revelle, 2016) in R, or Mplus (Muthén & Muthén, 1998-2015) Version 7.4. The faking modeling approach by Ziegler et al. (2015) was used to calculate Latent Change Score Models for each FFM domain (Models 1 to 5, see Table 4). As can be seen in the model, a latent change score variable is specified that captures the differences between the honest condition (measurement point 1) and the faking condition (measurement point 2). The mean of this latent variable can be considered the average deviation of faked scores from honest scores within each condition. Its variance reflects intraindividual differences in faking behavior. Model fit was tested with the Standardized Root Mean Residual (SRMR)  $< .11$  as suggested by Hu and Bentler (Hu & Bentler, 1999). Additionally, the Comparative Fit Index (CFI)  $> .95$  was used to determine the approximate fit of the model. In contrast to Hu and Bentler's recommendations we do not report the RMSEA because it has been shown to yield incorrectly large values in models with few degrees of freedom (Greiff & Heene, 2017; Kenny, Kaniskan, & McCoach, 2015). Following Kenny et al. we do not report the RMSEA at all. Moreover, we also followed their advice to test the sensitivity of the model parameters by adding additional model specifications to test whether the key parameters change. This kind of modeling is also in line with recommendations by Heene, Hilbert, Draxler, Ziegler, and Bühner (2011) who suggested this procedure to deal with the fact that Hu and Bentler's cutoffs are often not applicable to models, especially when loadings are small or only average.

Due to the complex method and the limited sample size, two dummy-coded group variables (faking bad vs. control group, faking good vs. control group) were integrated to specify

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the faking condition. By regressing the latent change score variable representing faking onto these dummy variables, group differences could be tested which is an important step to gauge the model's feasibility (Ziegler & Buehner, 2009). Accordingly, the faking good condition should score higher and the faking bad condition should score lower than the control condition on the latent faking variable in each of the five models. In order to test whether the faking instructions had distorted not only the means but also the correlations between the five domain scores analyzed here, we looked for correlation tables from data collected in real-life settings. For the fake good applicant condition we found a paper by Smith, Hanges, and Dickson (2001). Smith and colleagues reported results from an applicant sample ( $N = 2,500$ ) with various occupations. It is important to note here that our sample contained only one occupation, participants aimed at. Thus, our correlations might be somewhat larger (Pauls & Crost, 2005). For the fake bad condition we were unable to find a study that had real life data, not data from a lab. Thus, the following analyses were only undertaken for the fake good condition. In a first step, we simply compared the correlations reported by Smith et al. with the confidence interval for the correlations found in our sample. In a second step, we specified a multigroup path model with the manifest five domain scores as correlated variables. Such a model has zero degrees of freedom and simply reflects the correlation matrix. We used the fake good condition as one group and the Smith et al. sample (reported correlation matrix) as the second group. We then fixed correlations to be equal across groups and tested whether model fit deteriorated. All code and output can be found in the OSF material.

In a next step, factor scores for the latent change score variables reflecting faking from all five models were estimated to be used in the analyses for investigating whether faking would be found to be homogenous within and between the faking good and faking bad groups (Models 6 and 7, see Figures 1 and 2). In a first step, a unidimensional model with the five faking scores as indicators of a latent faking variable was tested in each group. If the configuration of this model were found to be the same, a test of measurement invariance-would be conducted in a second step.

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This latter analysis was computed to help us determine whether the psychological processes of faking bad and faking good are conceptually similar.

Finally, we computed regression analyses that were aimed at answering research questions regarding the possible constructs related to faking behavior. To this end, an EFA (principal axis factoring with oblimin rotation) with all six socially desirable responding scales was calculated in a first step to extract the often reported two factors of SDR<sup>1</sup>: Alpha (claiming unlikely virtues) and Gamma (denying common faults). In regression analyses, these two SDR factors, an overclaiming score, and the dark triad scores were included along with age and gender as covariates into the measurement models of faking good and faking bad derived in the prior analysis.

The current study followed APA's Ethical Principles of Psychologists and Code of Conduct as ethics board approval is not customary in the institute this research was conducted.

### Results

Before describing the results of the current models, *t*-tests were conducted as a manipulation check. The faking groups differed significantly in the expected directions. Effect sizes were moderate to large. In order to put the effect sizes found into a perspective, it is informative to compare them with studies comparing applicants and incumbents. Several such studies exist (e.g., Ellingson et al., 2007; J. Hogan, Barrett, & Hogan, 2007). However, the meta-analysis by Birkeland et al. (2006) showed that faking depends on the specific job demands. Consequently, mixing applicants for different jobs potentially blurs faking effects. Thus, we referred to a study by Jeong, Christiansen, Robie, Kung, and Kinney (2017) who compared applicants and incumbents for the same job. The effect sizes (Cohen's *d*) reported across four samples ranged between .6 and 1.01. With two exceptions, our effects also fall within this range.

### Replication and Expansion

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<sup>1</sup> We thank an anonymous reviewer for this suggestion.

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The first aim of this study was to replicate findings by Ziegler et al. (2015) for all five domains of the FFM: neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. Table 4 includes the model fit statistics for all five Latent Change Score Models. It can be seen that all models fit the data satisfactorily. Moreover, all loadings of the manifest indicators were significant ( $p < .001$ ). The regression weights for the dummy-coded group variables were all significant and in the expected directions (Table 5) which also serves as manipulation check.

As stated above, we also compared the confidence intervals of correlations derived from our data with correlations reported by Smith et al. (2011). From the ten correlations, only four differed. Next, we also tested the correlation matrix of the five domain scores from the fake good condition for equivalence with a matrix taken from Smith et al. (2001). The model assuming equivalence had an acceptable fit:  $\chi^2(10) = 290.221$ ,  $p < .01$ , CFI = .915, SRMR = .040. Model fit could even be improved by allowing the correlations between neuroticism and openness and extraversion and conscientiousness to vary ( $\chi^2[8] = 195.146$ ,  $p < .01$ , CFI = .943, SRMR = .037).

To sum up, for each structural model for the five personality factors, faking could be modeled, and the faking instructions were successful as evidenced by the relations with the dummy coded variables. Moreover, the resulting correlations between the five domains are not severely different from the correlational pattern found in real applicant data.

**Faking Good versus Faking Bad**

In a next step we tested measurement models for each faking condition. The assumed one-factor solutions did not meet the criteria we set for model fit. Thus, based on the current data, faking good and faking bad cannot be considered homogeneous across the five domains. In both conditions, correlated residuals had to be specified based on modification indices and, importantly, interpretability (Heene, Hilbert, Draxler, Ziegler, & Bühner, 2011). The respecified models showed a more acceptable fit: faking bad,  $\chi^2(3) = 10.623$ ,  $p < .01$ , CFI = .964, SRMR = .038, and faking good,  $\chi^2(5) = 12.163$ ,  $p < .05$ , CFI = .957, SRMR = .056. The factor loadings are displayed in Figures 1 and 2. The normed  $\chi^2$  values were for faking bad (normed  $\chi^2 = 3.54$ ) and

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faking good (normed  $\chi^2 = 2.43$ ) both were acceptable. In the group that was instructed to fake bad, the factor loadings for neuroticism ( $a = -.85$ ) and conscientiousness ( $a = .78$ ) were very high. A high and significant correlation between the residuals of the factor scores for agreeableness and openness ( $r = .55$ ) was specified. The opposite applied to the factor loadings in the group that was instructed to fake good. The highest loadings here occurred for the factors—manipulated in the instructions, that is, openness to experience ( $a = .67$ ) and agreeableness ( $a = .56$ ), but the loadings for neuroticism ( $a = -.56$ ) and conscientious ( $a = .46$ ) were also substantial. The residual of extraversion had to be fixed to zero. Furthermore, we found a strong and significant correlation between the residuals of the factor scores for conscientiousness and neuroticism ( $r = -.52$ ). We did not test for measurement invariance because the models did clearly not have the same configuration, that is, they exhibited different but potentially meaningful correlated residuals.

**The Nature of Faking**

To investigate correlates of faking behavior, we tested selected social desirability scale scores, an overclaiming score, and the scores from the Short Dark Triad Scale as predictors of faking bad and faking good in two regression models.

First an EFA was applied to all of the SDR scores to extract two factors. Table 6 presents the factor loadings. The first factor was marked by the MMPI Lie scale, the impression management scale and the Marlowe-Crowne scale. This factor was called *Gamma* following J. S. Wiggins (1964). The second factor comprised the Edwards scale and the self-deceptive enhancement scale of the BIDR and was named *Alpha* (J. S. Wiggins, 1964). The factor intercorrelation between Gamma and Alpha was moderate ( $r = .37$ ).

In a next step, separate regressions for the faking bad and faking good (Table 7) conditions were conducted. The predictors age and gender (male=1; female=2) were included as covariates. Other predictors were factor scores for Gamma and Alpha, scores for overclaiming, narcissism, psychopathy and Machiavellianism. The explained variance for faking bad was 68.7%. A significant contribution was made by the factors gender ( $\beta = -.20$ ;  $r = -.23$ ) and Alpha ( $\beta = -.32$ ;  $r = -.46$ ). In the model for the faking good group the explained variance was 67.4 %.

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Four predictors Machiavellianism ( $\beta = .25$ ;  $r = .21$ ), narcissism ( $\beta = -.37$ ;  $r = -.38$ ), Alpha ( $\beta = -.26$ ;  $r = -.38$ ) and overclaiming ( $\beta = -.16$ ;  $r = -.15$ ) were significant.

### Discussion

The main goals of this study were (a) to apply Ziegler et al.'s (2015) statistical approach to modeling faking to scores from all five factor domains, (b) to test whether the psychological process of faking is homogeneous across those domains and across faking good and faking bad behavior, and finally, (c) to investigate predictors of faking. At two measurement occasions, participants filled out a personality inventory, first under normal conditions (honestly) and, in the second part of the study, with specific faking instructions (to fake bad or fake good). Furthermore, in the first part, we administered a test battery including a variety of measures capturing social desirability, overclaiming, and the dark triad. Some of these measures are typical tests in a clinical setting, for example the lie scale of the MMPI-2. Our findings indicated that all domains of the FFM were faked and that variance in faking behavior could be modeled with Ziegler et al.'s approach. The findings also implied that faking behavior differed across the five domains and in accordance with situational demands (faking good or bad). This means that faking is not a singular process. These results could help to explain contrasting findings from clinical and I/O research with regard to the evaluation of so-called social desirability scales. Finally, whereas the selected constructs explained substantial amounts of variance in both faking conditions, only the Alpha factor (i.e. the common variance underlying the Edwards scale and the self-deceptive enhancement scale) was associated with faking in both conditions.

### Replication and Expansion

The current findings provide empirical support for the usefulness of Ziegler et al.'s (2015) approach to model faking. Moreover, the inclusion of all five domains into the analyses is an important expansion. We further showed that the modeling approach also works for faking bad instructions. When faking good, participants were able to present themselves in a more open, agreeable, extraverted, and conscientious way, and the opposite held for faking bad. The existence of such a modeling approach can be beneficial for further explorations of the nature of faking in

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different settings. At the same time, one important but rather practical drawback is that two measurement occasions are needed for this type of investigation. Whereas this is not problematic in laboratory settings, it poses a substantial obstacle in real-life settings. However, there are empirical studies that have been able to circumvent this problem (e.g. Griffith, Chmielowski, & Yoshita, 2007).

**Faking Good versus Faking Bad**

Furthermore, we investigated the psychological processes behind faking good and faking bad. The current findings imply that there are different processes behind these two behaviors. This conclusion is based on the differing loading patterns but also on the different correlated residuals in each condition. Whereas correlated residuals have to be dealt with carefully, especially considering the sample size used here, the specific patterns we found can still be meaningful, even though they require replication in independent samples. Regardless of this, the fact that a model without correlated residuals did not fit clearly implies that faking cannot be regarded as a homogeneous process, neither under fake bad nor under fake good conditions.

In both conditions, we found strong loadings on some faking scores and correlated residuals among other faking scores. It is interesting that this pattern was reversed in the two groups: High loadings for faking scores of neuroticism and conscientiousness in the group that was instructed to fake bad imply a generally bad self-presentation without an emphasis on the domains manipulated by the instructions. These influences characterize the variance that is common across all faking bad scores. However, a correlated residual between agreeableness and openness, two of the manipulated domains, indicated that the participants recognized the situation-specific demands, resulting in faking behavior that was not common to all domains but specific to the ones that were manipulated.

A different picture emerged for the psychological process represented by the measurement model for faking good. Here, the loadings of the manipulated domains extraversion, openness, and agreeableness were dominant. This implies that not only was faking good triggered by the instructions, but it was also reflected in all five of the domains, even the ones that were not

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manipulated. However, in this condition, there was also a correlation between the residuals for neuroticism and conscientiousness, neither of which was manipulated. Again, this could mean that these domains were systematically faked in a slightly different, perhaps more general way. Finally, it has to be noted that the residual for extraversion had to be fixed to zero in the faking good condition. In other words, this factor score completely marked the general faking good factor.

We can also conclude that it is always easier to fake neuroticism and conscientiousness, regardless of whether one is faking good or bad. However, it might be easier to be successful at faking good than at faking bad. The model of faking behavior by Ziegler (2011) stated that faking occurred only when test takers perceived that the item was important to reach one's situation specific goal. This could be easier in a faking good scenario and could explain the strong contributions by the domains that were manipulated. In a faking bad situation, it might still be obvious that the item is relevant, but the best way to portray oneself in a negative way might be less clear. Neuroticism and conscientiousness are most likely easier to distort in a negative direction due to their clear implications for clinical as well as I/O related situations. In conclusion it is important to note that models for faking bad and faking good were dissimilar and thus implying different psychological processes. Importantly, the inclusion of correlated residuals within each condition showed that faking cannot even be considered to be homogeneous across all domains, even when looking at the conditions separately. In other words, when faking it not only matters whether one aims to appear better or worse. It also seems to matter which construct an item reflects. As Ziegler (2011) noted, people first judge each item with regard to its relevance for the faking aim. Only if an item is considered to be informative, faking occurs. The current results further suggest that the ensuing faking process is additionally influenced by the construct the item reflects. Thus, even if one aims at faking good, it matters whether the item concerns extraversion or conscientiousness, for example. One reason might be that each domain is involved in the process. In other words, people already high in extraversion have less room for distortion. An alternative to this statistical explanation would be that fakers have different implicit or explicit



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knowledge of the relevance of each domain for the pursued goal. For example, if one person holds a different picture of a job than another person, differences in faking will occur for each domain. Analyzing only one domain at a time, this heterogeneity will not be detected (see Ziegler & Hagemann, 2015, Cases I and III). However, once several domains are analyzed at the same time, the idea of unidimensionality has to be rejected. Thus, the idea of a common faking process across all domains is problematic even within conditions.

**The Nature of Faking**

The last objective of this investigation was to predict faking behavior with a variety of scores from other scales. This was also done in order to directly compare the ability of so-called social desirability scales to detect faking in faking bad and faking good situations. To this end we kept the situation constant and manipulated participants' motivation to fake. The empirical support for the assumptions made above was mixed. Looking at specific predictors, gender was significant only for faking bad such that women faked less than men. With regard to the so-called faking-detection scales, only the Alpha factor had a significant regression weight for faking bad and faking good. According to Paulhus (2002) Alpha is associated with "[...] a self-deceptive tendency to exaggerate one's social and intellectual status." (Paulhus, 2002, p. 63). In our analyses the Alpha factor was marked by the Edwards scale and the self-deceptive enhancement scale. Thus, from a theoretical perspective higher scores on Alpha reflect a tendency to exaggerate the positive self-perceptions (positive loadings of Edwards scale and self-deceptive enhancement scale. This means that the common variance underlying the two scales is important. Pauls and Stemmler (2003) could show that self-deceptive enhancement scales reflect an egoistic bias (also see Paulhus, 2002). It is important to consider the direction of the relation, though. The regression weights for the Alpha factor were negative in both cases. For Faking bad this means that the deviation between the honest score and the faked score becomes more negative the higher the person's score on Alpha. In other words, a stronger egoistic bias led to more faking bad. For faking good the regression weight was also negative which means that a stronger egoistic bias led to less faking. This is an interesting finding which highlights the potential differences underlying

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the two psychological processes taking place. Whereas an egoistic bias might not lead to self-restraint when trying to look bad, it might be problematic when trying to look very good. The most obvious explanation could be that the bias already led to inflated honest scores. Thus, there was less room to fake good but enough room to fake bad. This would also mean that the SDR scales do not really pick up faking but only detect changes from the self-enhanced “honest” ratings. Importantly, our analyses (Appendix B) also showed that only the Edwards social desirability scale and the Marlowe-Crowne “attribution of desirable behavior” scale had significant and also negative regression weights in predicting faking.

Despite significant zero-order correlations, none of the dark triad traits significantly predicted faking bad. Thus, it might be the common core of the dark triad that explains differences in faking bad. Book, Visser, and Volk (2015) described this common core as a combination of callousness and low honesty/humility. It seems reasonable that distorting one’s answers, which not only increases one’s own chances but also potentially comes at the costs of others, is related to callousness and dishonesty. However, Machiavellianism was only significantly correlated with faking good. This lack of influence on faking bad might have occurred for two reasons. First, per definition, a person with high scores on Machiavellianism does not depreciate himself or herself. Second, asking test takers to fake on their questionnaires might have created a strong situation with a strong and unambiguous benefit for everyone. For such a situation, trait activation theory (R. P. Tett & Burnett, 2003; Ziegler et al., 2014) would predict that trait differences relevant in other situations will not manifest. It is interesting that for faking good behavior, the findings were slightly different regarding narcissism and Machiavellianism, supporting the conclusion that faking bad and faking good represent related but distinct psychological processes. Especially the correlation between Machiavellianism and faking good is theoretically interesting. For Machiavellianism the regression weight was positive which means that a manipulative personality led to more faking. This result fits with the definition of Machiavellianism (Christie & Geis, 2013). For Machiavellians a lie is a good instrument to influencing people to get what they want. Also Kashy and DePaulo (1996) reported that manipulative people used more lies. Clearly,

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manipulative behavior as observed here is prototypical for Machiavellians. Thus, the current finding underscores the potentially dark nature of faking behavior.

The negative regression weight for narcissism was most likely an artifact due to a ceiling effect. Narcissists tend to self-promote even under honest conditions (Maaß & Ziegler, 2017). Thus, there might have been too little rating scale left to further self-promote. Finally, the result for overclaiming was a surprise. Above we had hypothesized that overclaiming should be positively correlated with faking good. The current results show that despite being a small effect, the direction is opposite to the one assumed: People scoring higher on overclaiming faked less in the fake good condition. According to Paulhus, Bruce, and Trapnell (1995), outliers can affect correlations in faking studies. Those authors could show that such outliers often did not read or follow faking instructions. Ludeke and Makransky (2016) could show that such careless responding was related to overclaiming. These ideas informed an additional post hoc analyses (see OSF). The data set included three participants with an overclaiming score of 1 within the fake good condition. Such a score can only be achieved when claiming familiarity with all items. This could imply careless responding even though we lack the definite proof at this point. Moreover, those three participants also achieved low faking good scores. Thus, they faked much less than the other participants, which also implies not following instructions. Be that as it may, excluding those three participants yielded a non-significant correlation between faking good and overclaiming ( $r = -.07$ ,  $p = .46$ ). To sum up, the current analyses seem to suggest that overclaiming might be more responsive to careless responding than substantial differences in faking good or bad.

What remains is the question why clinical and I/O psychologists might have come up with such differing results. One answer that seems conclusive is the focus of I/O psychologists on non-clinical scales.

### Theoretical and Practical Implications

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On the basis of the successful application of Ziegler et al.'s (2015) faking model, we recommend that this model be applied to further investigate the nature of faking good and faking bad. We tried to simulate two different high stakes situations in the current investigation. The lab setting is certainly a limiting factor with regard to the generalizability of the findings. Based on the faking intention models described above, it is also very likely that the variance in faking behavior is considerably larger in real-life settings. This, in turn, would potentially increase the regression weights found here.

A new aspect worth following up in future research are the results implying that faking is not homogenous across traits within a certain condition, and neither across conditions. This also means that results from studies with only one kind of condition should not be generalized to all faking situations. Further studies should continue to focus on both kinds of instructions to better understand the psychological process of faking.

Furthermore, on the basis of the current empirical findings, we cannot recommend that response distortion scales such as social desirability scales or overclaiming questionnaires be used to measure faking regardless of their theoretical underpinnings or the specific situational demand. The current study suggests that the common variance underlying Alpha scales like the Edwards scale and the self-deceptive enhancement scale is related to faking good and faking bad. In fact, for faking bad, this Alpha factor was the only significant predictor in the regression analysis besides gender. Considering earlier findings (Bensch et al., 2017) that showed that those scores are not free of personality variance, and, further considering that within each measurement model we only controlled for the variance of the modeled domain but not the other four domains, it cannot be ruled out that the relation between Alpha and faking found here was due to personality variance captured within Alpha. In order to rule this out, a considerably larger sample is needed, which would allow to model all five domains in one model, thereby controlling for each domain when extracting individual differences in faking behavior.

**Limitations and Outlook**

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In the current study, we examined only one context (job applicant). It is necessary to replicate these findings in clinical contexts (Grieve & De Groot, 2011; Paulhus, 2002) before generalizing to this area of psychological assessment. One further reason for a replication is the small degree of freedom of the specified models. The measurement models for faking bad and faking good had to be changed based on modification indices. While this informs the question whether faking is homogeneous across domains within each condition, the generalizability of the added correlated residuals must be shown in a replication.

Another limitation is that we did not systematically vary real-life influences (e.g., job market, desirability of the job, etc.) here. This might have led to variance restrictions. Finally, we used a lab setting in which participants imagined specific roles and demands. This clearly limits generalizability. Still, we hope that the current results help to further our understanding of faking.

Detailed insights into the construct of faking are important for a number of reasons. Hence, it seems necessary to apply qualitative approaches to generate hypotheses regarding further differences in faking behavior. This will be vital for understanding the person-situation interaction resulting in faking. To come back full circle to our starting point, the definition of faking (Ziegler et al., 2012b) includes two important aspects: situational demands and person characteristics. The heterogeneity of the construct of faking emphasizes the person-situation interaction. Depending on what is triggered in a situation (faking good or faking bad), people seem to behave differently. The current study provides further insights into the person characteristics of this interaction. The specific situational demands, narcissism, Machiavellianism, and the variance behind the Alpha factor (exaggerate one's social status) play important roles in faking. However, the current results also show that faking is not always the same thing. The situation as well as the trait focused matter, even for dishonest behavior.

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## THE NATURE OF FAKING

Table 1

*Descriptive Statistics for All Measures*

Scale	Min	Max	<i>M</i>	<i>SD</i>	$\Omega_w$
Edwards SD scale	1.96	4.92	3.50	.55	0.88
1 <sup>st</sup> factor Marlowe-Crowne scale	1.9	4.8	3.57	.47	0.70
2 <sup>nd</sup> factor Marlowe-Crowne scale	1.85	4.61	3.01	.50	0.74
Self-deceptive enhancement	2.55	5.85	4.07	.58	0.73
Impression management	1.35	6.15	3.87	.78	0.79
Lie scale	1.33	4.2	2.51	.50	0.75
Overclaiming	0	1	.56	.19	0.64*
Neuroticism T1	4.66	26.66	15.58	4.09	0.91
Extraversion T1	5.17	27.16	18.00	3.66	0.85
Openness T1	10.66	28.66	20.98	2.86	0.70
Agreeableness T1	8.33	27	19.40	2.91	0.77
Conscientiousness T1	8.83	28.83	19.08	3.46	0.86
Narcissism	1.33	4.33	2.81	.54	0.69
Machiavellianism	1.3	4.4	2.63	.60	0.81
Psychopathy	1	3.55	1.95	.53	0.76

*Note.*  $N = 233$ .  $\Omega_w$  = McDonald's Omega. \* = Explained variance from a principal component analysis as a lower-bound reliability estimate (Cureton & D'Agostino, 1983). Min, Max = Minimum and maximum value by any person on the respective scale, *M* = Mean, *SD* = standard deviation. Openness, Extraversion, Agreeableness, Conscientiousness, and Neuroticism were measured with the NEO-PI-R. T1 = Time 1.

Table 2

*Correlations Among all Measures*

Scale	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Edwards SD scale	-														
2 1 <sup>st</sup> factor Marlowe-Crowne scale	.16**	-													
3 2 <sup>nd</sup> factor Marlowe-Crowne scale	.55***	.28***	-												
4 Self-deceptive enhancement															
5 Impression management	.50***	.15**	.33***	-											
6 Lie scale	.14**	.32***	.42***	.23***	-										
7 Overclaiming	.32***	.22***	.58***	.32***	.57***	-									
8 Neuroticism T1	-.05	-.08	.04	.08	-.01	.03	-								
9 Extraversion T1	-.78**	-.18***	-.60***	-.67***	-.27***	-.41***	.01	-							
10 Openness T1	.51***	.26***	.17***	.40***	-.05	-.02	.01	-.38***	-						
11 Agreeableness T1	.14**	.23***	.10*	.14**	-.05	-.13*	-.03	-.09*	.44***	-					
12 Conscientiousness T1	.24***	.43***	.46***	-.11*	.36***	.26***	-.10	-.12**	.15***	.27***	-				
13 Narcissism	.40***	.21***	.30***	.50***	.31***	.32***	<.01	-.39***	.22***	-.09*	.04	-			
14 Machiavellianism	.21***	.06	-.08	.44***	-.11*	-.10	.13**	-.23***	.49***	.24***	-.31***	.18***	-		
15 Psychopathy	-.31***	-.24***	-.41***	-.04	-.26***	-.29***	.08	.24***	-.25***	-.30***	-.65***	-.03	.19***	-	
	-.24***	-.27***	-.45***	.02	-.4***	-.28***	.05	.23***	-.01	-.07	-.63***	-.19***	.36***	.50***	-

Note. N = 233.

\*p &lt; .05 \*\*p &lt; .01 \*\*\*p &lt; .001

## THE NATURE OF FAKING

Table 3

*Mean Differences between Faking Good and Faking Bad*

	<i>d</i>	<i>t</i>	<i>df</i>
<b>Neuroticism</b>			
Fake good	1.63	17.57***	115
Fake bad	-.48	-5.17***	116
<b>Extraversion</b>			
Fake good	-1.46	-15.69***	115
Fake bad	.88	9.51***	116
<b>Openness</b>			
Fake good	-1.11	-12.00***	115
Fake bad	.59	17.24***	116
<b>Agreeableness</b>			
Fake good	-.57	-6.18***	115
Fake bad	1.03	11.20***	116
<b>Conscientiousness</b>			
Fake good	-1.66	-17.86***	115
Fake bad	.61	6.62***	116

*Note.*  $N_{\text{faking bad}} = 117$ .  $N_{\text{faking good}} = 116$ .  $d$  = Cohen's  $d$ .

\*\*\* $p < .001$ .

## THE NATURE OF FAKING

Table 4

*Model Fits for Models 1 to 5*

Model	$\chi^2$	df	p	CFI	SRMR
1 Faking neuroticism	299.52	52	< .001	.94	.06
2 Faking extraversion	348.77	54	< .001	.90	.08
3 Faking openness	319.68	52	< .001	.90	.07
4 Faking agreeableness	293.33	52	< .001	.91	.07
5 Faking conscientiousness	258.27	52	< .001	.95	.07

*Note.*  $N = 233$ . CFI = comparative fit index; SRMR = standardized root mean square residual.

## THE NATURE OF FAKING

Table 5

*Regression Weights for the Dummy-Variables Predicting Faking for each Domain*

	$\beta$
Faking neuroticism	
Faking bad	.23**
Faking good	-.54**
<b>Faking extraversion</b>	
<b>Faking bad</b>	<b>-.59**</b>
<b>Faking good</b>	<b>.31**</b>
<b>Faking openness</b>	
<b>Faking bad</b>	<b>-.69**</b>
<b>Faking good</b>	<b>.21**</b>
<b>Faking agreeableness</b>	
<b>Faking bad</b>	<b>-.64**</b>
<b>Faking good</b>	<b>.19**</b>
Faking conscientiousness	
Faking bad	-.39**
Faking good	.48**

*Note.*  $N_{faking\ bad} = 117$ .  $N_{faking\ good} = 116$ . The manipulated personality factors are in bold.

\*\* $p < .01$ .



## THE NATURE OF FAKING

Table 6

*Factor Loadings After Oblimin Rotation*

	Gamma	Alpha
Lie scale	.79	.03
Impression management	.76	-.13
First-factor Marlowe-Crowne scale (attribution of desirable behavior)	.54	.36
Second-factor Marlowe-Crowne scale (denial of undesirable behavior)	.34	.04
Edwards SD scale	-.02	1.00
Self-deceptive enhancement	.20	.43

*Note.*  $N = 233$ .

## THE NATURE OF FAKING

Table 7

*Regression Weights for Correlates of Faking*

Predictor	Condition	Faking bad		Faking good	
		$\beta$	$r$	$\beta$	$r$
Age		-.07	-.16	-.10	-.13
Sex		-.20*	-.23**	-.03	-.02
Alpha			-		
		-.32*	.46***	-.37***	-.38***
Gamma		-.15	-.28**	.05	-.07
Overclaiming		.09	< .01	-.16*	-.15
Narcissism		-.23	-.21	-.37**	-.38***
Machiavellianism		.05	.21	.25*	.21*
Psychopathy		.01	.18	< .01	-.01

*Note.*  $N_{faking\ bad} = 117$ .  $N_{faking\ good} = 116$ .

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

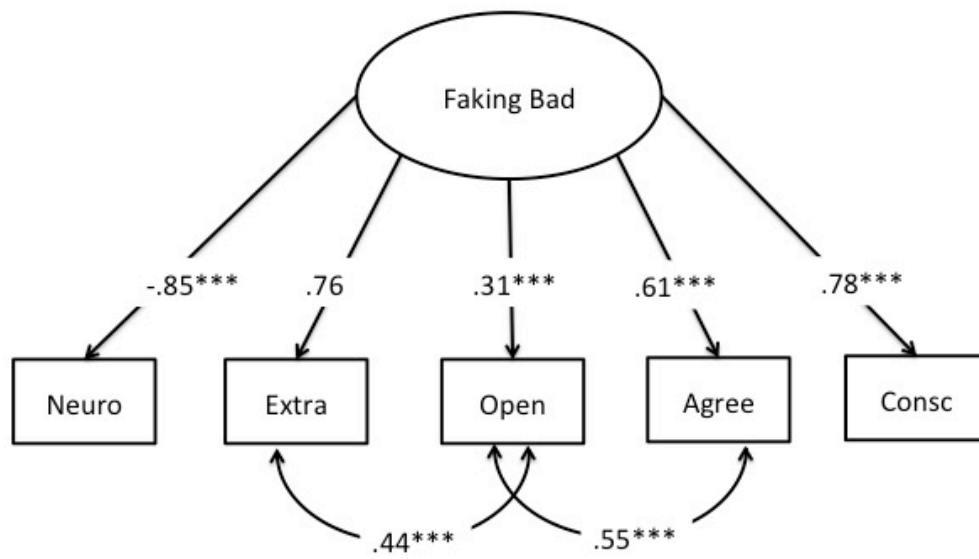


Figure 1. Model 6: Faking bad. N = 117. Neuro = Neuroticism; Extra = Extraversion; Open = Openness; Agree = Agreeableness; Consc = Conscientiousness. \*\*\*  $p < .001$ .

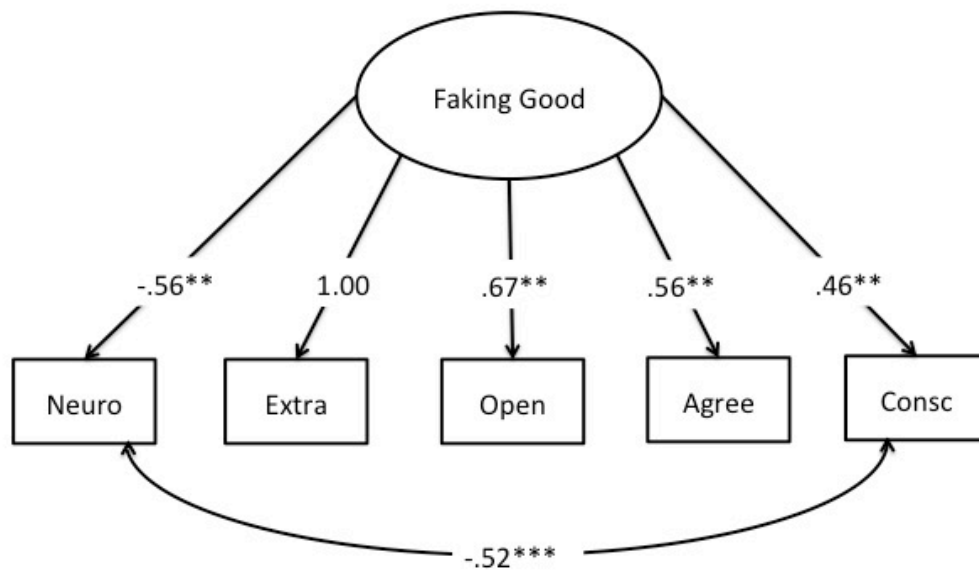


Figure 2. Model 7: Faking good. N = 116. Neuro = Neuroticism; Extra = Extraversion; Open = Openness; Agree = Agreeableness; Consc = Conscientiousness. \*\*\*  $p < .001$ .

## **Eidesstattliche Erklärung**

Hiermit erkläre ich an Eides statt,

- dass ich die vorliegende Arbeit selbstständig und ohne unerlaubte Hilfe verfasst habe,
- dass keine Zusammenarbeit mit gewerblichen Promotionsberatern stattfand,
- dass diese Dissertation zum ersten Mal eingereicht wird,
- dass die Grundsätze der Humboldt-Universität zu Berlin zur Sicherung guter wissenschaftlicher Praxis eingehalten wurden,
- dass ich mich nicht anderwärts um den Doktorgrad beworben habe und keinen Doktorgrad in dem Promotionsfach besitze, und
- dass ich die zugrundeliegende Promotionsordnung vom 05. März 2015 kenne.

Berlin, den 1.6.2018

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